SEPTEMBER, 1948

THE Refrigeration INDUSTRY

AIR CONDITIONING EQUIPMENT

MERCHANDISING ★ INSTALLATION ★ MAINTENANCE

Man of the Month . . .

URN TO PAGE 48

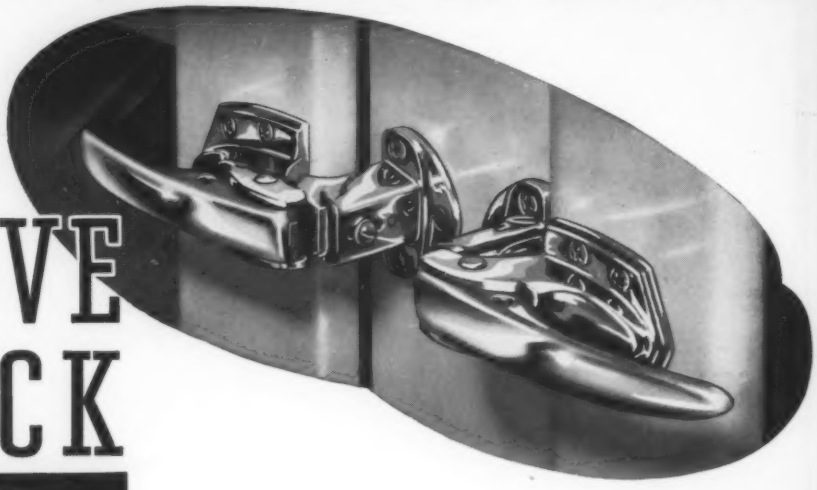


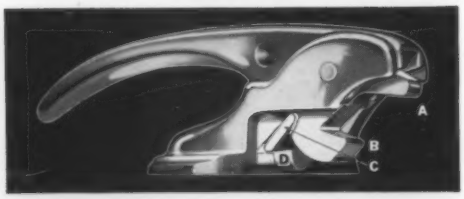
ROBERT C. WEBBER
Owner
Webber Appliance Co.
Indianapolis, Ind.

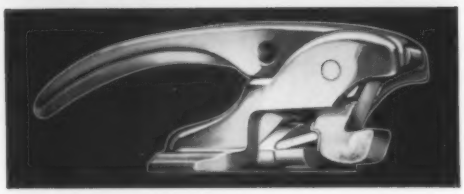
DON'T MISS: "GETTING DOWN TO EARTH" . . . the third in a series of "personality portraits" of men who have built successful businesses in the refrigeration field

FOR a POSITIVE SEAL

Install a POSITIVE LOCK







THE LOCK WITH THE *Living Action*

This patented lock construction never relaxes its upward grip. When the trigger (A) touches the strike, that undershot jaw (B) takes hold like a bulldog . . . with constant pressure from a powerful coil spring operating on an off-center plate (C) through the concealed bolt (D). That's why we call it "The Lock with the Living Action" . . . a principle exclusive with products of the Grand Rapids Brass Company.

Ask your jobber for locks and hinges by Grand Rapids Brass

And that goes for replacement, too!

Service men are coining easy money—making themselves "solid" with their customers—by installing Grand Rapids Brass locks and hinges on leaky commercial cabinets and back bars. Jobs like this may run into three figures—plenty of profit, plus time charges. Ask your jobber for our service manual . . . providing sure-fire selling tips and installation short-cuts with detailed working drawings. Act NOW—here's real money in your pocket.



Grand Rapids Brass Company

Makers of Dependable Refrigerator Hardware for over 40 Years

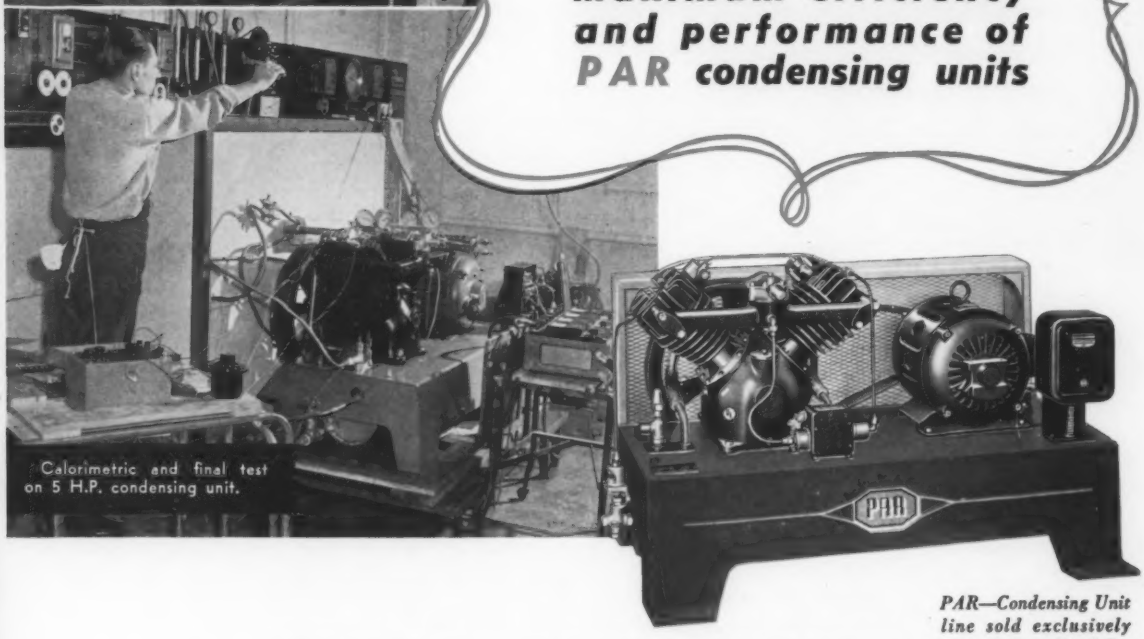
Grand Rapids 1, Michigan



Processing and testing Par condensing units on main conveyor line.



Final testing on Lynch production Line assures maximum efficiency and performance of PAR condensing units



Calorimetric and final test on 5 H.P. condensing unit.

PAR—Condensing Unit line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

When you buy Par you are assured of maximum efficiency and performance . . . for every Par unit must meet the rigid specifications of final testing before delivery . . . another step in the production of Par condensing units geared to precision manufacture.

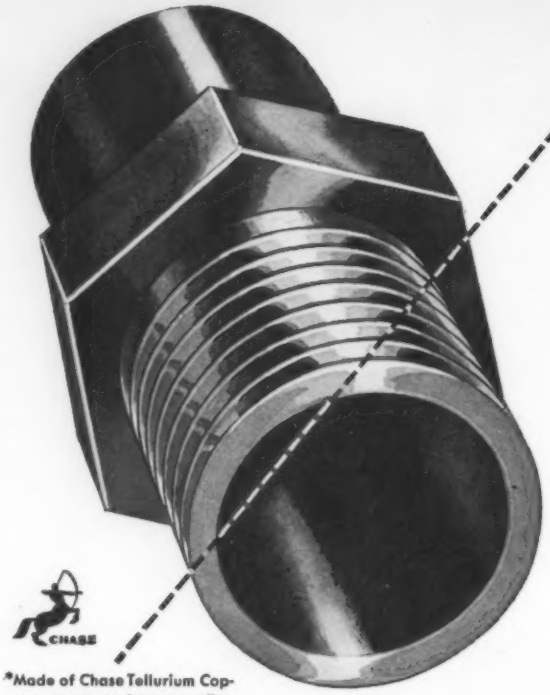
Par, also, gives blanket coverage in a wide range of models and sizes from 1/6 h.p. to 5 h.p. . . . domestic and commercial units for self-contained applications and heavy duty commercial units in air and water cooled models. There's a proper type, proper size Par unit to permit "tailored-installations" for maximum economy, efficiency and performance.

Ask your Par wholesaler for details or write for illustrated catalog and specifications.

By Comparison — You'll Buy PAR

LYNCH CORPORATION

Par Compressor Division TOLEDO 1, OHIO U.S.A.



*Made of Chase Tellurium Copper, a patented copper alloy of remarkable machinability that takes clean-cut threads. U. S. Pat. No. 2,027,807.

CHASE *COPPER SOLDER-JOINT FITTING ADAPTERS

Have SO_2 THREADS!

WITH SO_2 threads in sizes through 1" nominal, Chase Copper Tube Adapters are made of Tellurium Copper and designed for greater strength and resistance to deformation caused by wrench stresses. Tellurium Copper is a special copper alloy developed by Chase that possesses excellent machinability and gives Chase adapters the uniform threads that mean tighter, leakproof joints.

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For better installations call your Chase Distributor today and ask for Chase Copper Refrigerator Tube and Wrought Copper Solder-Joint Fittings.



Chase Copper Refrigerator Tube and Fittings give you

TIGHTER JOINTS! EXTRA STRENGTH!

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the Nation's Headquarters for
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SEPTEMBER, 1948

VOLUME 5, NO. 9

❖

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THE Refrigeration INDUSTRY

THE COVER . . . Bob Webber and his "baby"—the heat pump which he developed and which has gained him world-wide renown. But this heat pump represents only one phase of Bob's varied interests. If you want to learn about a few more of his enterprises, turn to page 48 of this issue.

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Third "Man of the Month" named by THE REFRIGERATION INDUSTRY is Bob Webber of Indianapolis. More of these "human interest" stories about men who have built up successful businesses in the field of commercial refrigeration and air conditioning will follow in future issues. Watch for them each month!

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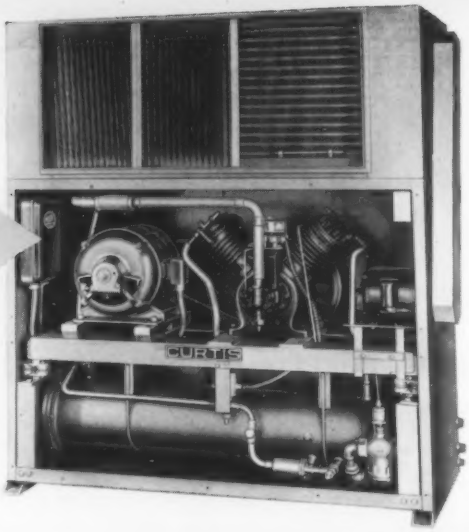
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Curtis Air Conditioning Unit equipped with Allen-Bradley Bulletin 709 Form 1 Solenoid Starter. Thermal relays give accurate overload protection.

CURTIS REFRIGERATION UNITS

equipped with

Trouble-Free Motor Controls



Allen-Bradley Solenoid Starters available for single-phase and three-phase motors up to 100 hp, 220 v; 200 hp, 440-550 v.

ALLEN-BRADLEY STARTERS ARE TROUBLE FREE. Only one moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

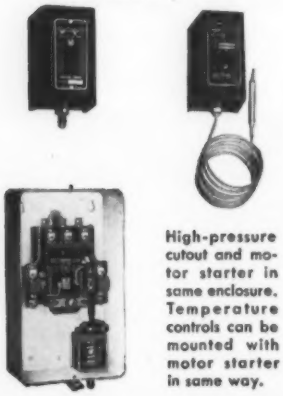
NO CONTACT MAINTENANCE. Allen-Bradley patented silver alloy contacts never need cleaning, filing, or dressing.

DEPENDABLE OVERLOAD RELAYS. Allen-Bradley thermal relays are accurate and dependable even after long service.

The A-B trademark stands for millions of trouble-free operations.
Allen-Bradley Co., 1340 S. Second St., Milwaukee 4, Wisconsin.

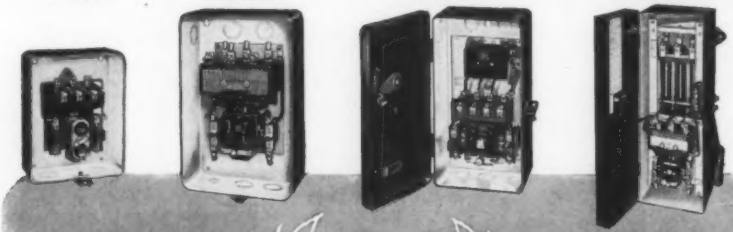
ALLEN-BRADLEY AIR-CONDITIONING AND REFRIGERATION CONTROLS

PRESSURE AND TEMPERATURE CONTROLS



High-pressure cutout and motor starter in same enclosure. Temperature controls can be mounted with motor starter in same way.

MANUAL STARTER | **AUTOMATIC STARTER** | **COMBINATION STARTER** | **HEAVY COMPRESSION STARTER**

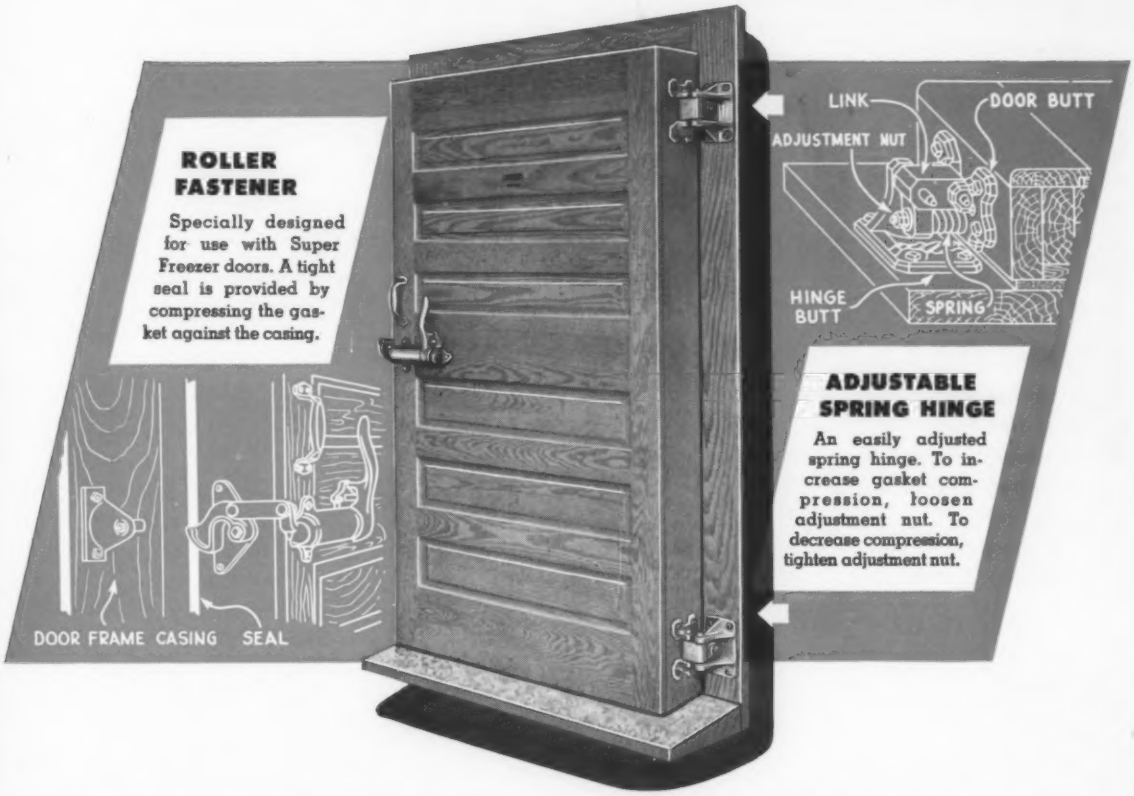


ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

The DOOR that helped make quick freezing possible

. . . JAMISON-BUILT Super Freezer

This Super Freezer Cold Storage Door is of the Stevenson overlap type for service at sub-freezing and sharp freezing temperatures. It is far superior for ice cream hardening rooms, frozen food storage, low-temperature test rooms, and similar applications. Hardware of extraordinary strength and unusual design is used on these doors.



Standard models of this Jamison-built Super Freezer Door are available in a wide range of sizes. Should you require special types or sizes, we are equipped to build them to any specification. Write for the address of our nearest branch office or send for complete catalog to Jamison Cold Storage Door Co., Hagerstown, Maryland.

JAMISON
HAGERSTOWN, MARYLAND, U. S. A.

The Oldest and Largest Builder of Cold Storage Doors in the World.

United KOOLMASTER

Direct Draw Beer Dispenser

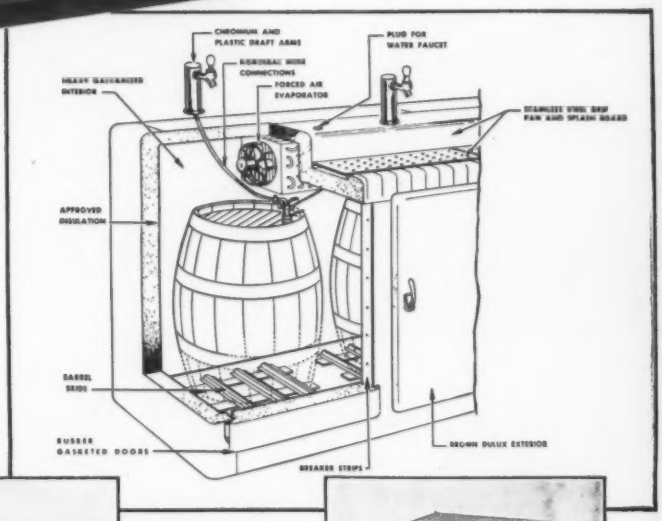


- 2 and 3 keg models remote or self-contained
- One piece sink with stainless steel splash board
- Steel construction
- Modern design
- High-baked, rich brown Dulux finish
- Heavy, approved insulation
- Koroseal hose connections
- Built-in barrel skids

Speeds Service, Cools Faster, Maintains Perfect Serving Temperature

Check the United features. See for yourself how United will serve you—greater efficiency; controlled, faster refrigeration; low upkeep; easy maintenance. The cutaway diagram at right shows the simplified, advanced design. Special cooling unit located out of way of kegs.

Some territories still open—write or phone



Dry-Kool
BOTTLE COOLER

Famous stainless steel disappearing doors — dry, cold bottles in easy reach for fast service. Four sizes remote or self-contained.



Kubemaster
ICE-CUBE MAKER

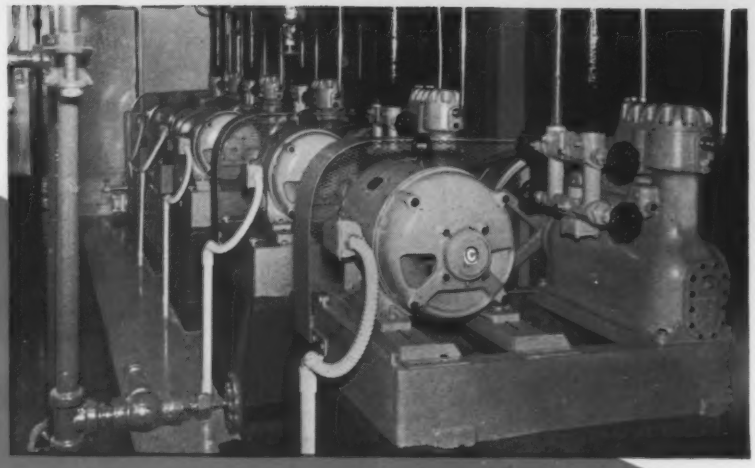
Make and store your own ice cubes—freeze as much as 2½ bushels a day. Space for cooling wines, trays for garnishes.



UNITED REFRIGERATOR COMPANY

350 ROBERT STREET · ST. PAUL 1, MINNESOTA

One each 5, 7½, 10 and 15 horsepower type SCH three phase Century motors drive compressors in a locker plant.



The High Starting Torque of Century Type SCH MOTORS

Assures Prompt, Quiet Starting of Reciprocating Refrigeration Compressors When Starting Under Load



Century 40 and 75 horsepower type SCH three phase motors drive compressors in a fruit warehouse.



Century type SCH 3 phase squirrel cage motors have sufficient starting torque to start heavy loads — with low starting current—without over-motoring the compressor. They come up to full speed quickly, yet smoothly and quietly.

They are unusually free from vibration and are ruggedly built for long satisfactory service, even under severe operating conditions.

You will find Century type SCH motors ideal for such hard-to-start loads as refrigeration compressors.

In addition, Century builds a complete line of motors in sizes from 1/6 to 400 horsepower to assure top performance for all popular applications.

Specify Century motors for all your electric power requirements.

CENTURY ELECTRIC COMPANY
1806 Pine St., St. Louis 3, Missouri
Offices and Stock Points in Principal Cities

585



A tiny drop of water . . .

REFRIGERATION'S BIGGEST PROBLEM!

LIQUID Sulfur Dioxide ANSUL* — LIQUID Methyl Chloride ANSUL*

*REG. U. S. PAT. OFF.

Important Questions . . . IN SELECTING A DRIER

1. Does the material dry the refrigerant below the corrosion limits when placed in the liquid line? In the suction (vapor) line?
2. Does the material dry the refrigerant below the limits for ice formation with methyl chloride and the "Freon" refrigerants?
3. Does the material accomplish the drying in one passage of the refrigerant, or is it slow, i.e., requires several passages?
4. Does the material deteriorate in physical character in handling or when it removes water from the refrigerant?
5. Does the oil affect the drier adversely?
6. Does the drier corrode?

DRYING POWER OF VARIOUS MATERIALS

Drier	Refrigerant	Liquid or Vapor	Max. Residual Water Concentration After Passage Through Drier	
			.25% Initial Water Concentration	.02% Initial Water Concentration
ACTIVATED ALUMINA	Sulfur Dioxide	L	.15	.005
		V	.01	
	Methyl Chloride	L	.02	.006
		V	.01	
SILICA GEL	Sulfur Dioxide	L	.15	.006
		V	.01	
	Methyl Chloride	L	.01	.004
		V	.01	
DRIERITE (Calcium Sulphate)	Sulfur Dioxide	L	.15	.009
		V	.08	
	Methyl Chloride	L	.05	.003
		V	.04	
CALCIUM CHLORIDE $CaCl_2$	Sulfur Dioxide	L	.09	.013
		V	.03	
	Methyl Chloride	L	.10	.005
		V	.04	
CALCIUM OXIDE CaO	Sulfur Dioxide	L	.20	—
		V	.15	—
	Methyl Chloride	L	.15	—
		V	.08	—
BARIUM OXIDE BaO	Sulfur Dioxide	L	.20	.017
		V	.15	
	Methyl Chloride	L	.05	.006
		V	.05	



SEND FOR THIS BULLETIN

An informative reprint, "REFRIGERANT DRIERS," will be sent on request. No obligation. Send for it today.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

ANSUL REFRIGERANTS ARE AVAILABLE AT LEADING WHOLESALERS EVERYWHERE

ANSUL CHEMICAL COMPANY

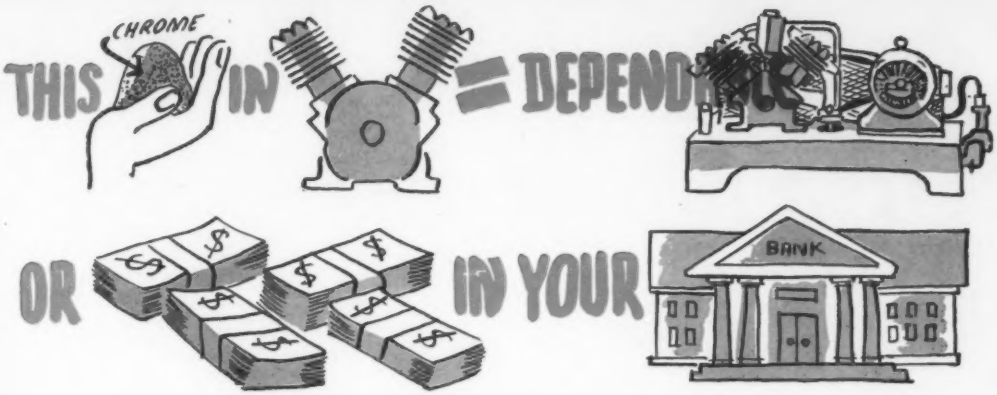
REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22," "FREON-113" AND "FREON-114"

BRUNNER SINCE 1906

REFRIGERATION helps you serve better

Memo to Equipment Installers

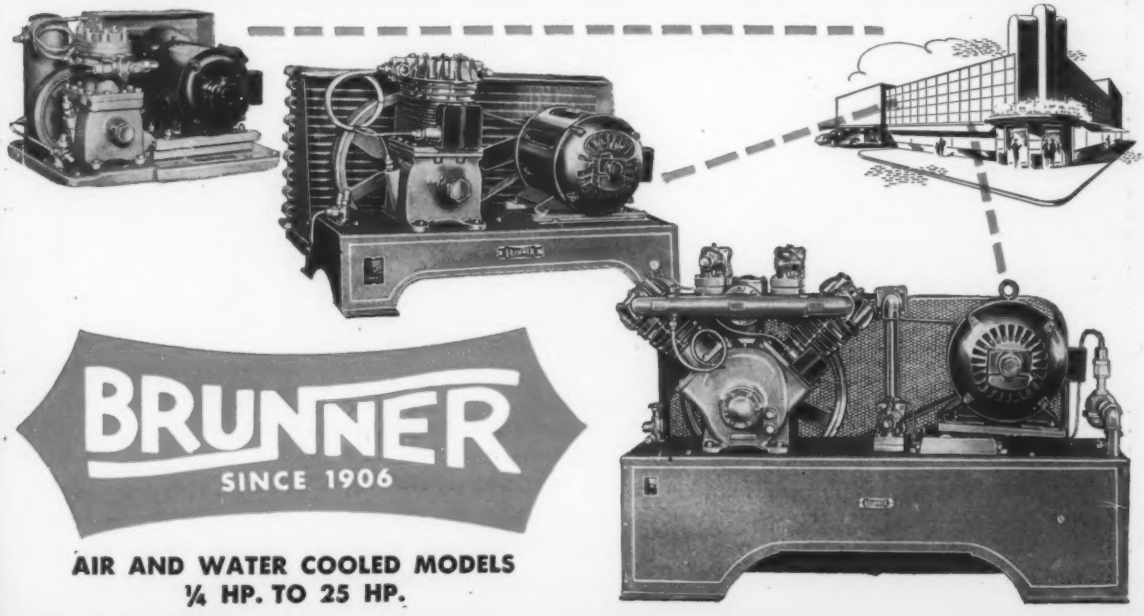


That handful of chrome in the compressor casting can well be the starting point of more profits from sales and more complete customer satisfaction. This and many other technical reasons why Brunner condensing units have become "most wanted" will make interesting listening and your business more profitable. Spend a little time with a Brunner factory representative* who talks your language—knows your sales and service problems.

The recognized quality of Brunner units has forced greatly expanded manufacturing facilities—new buildings—more assembly lines—latest developments in precision machinery. It makes good sense to "check up" and have the advantages of Brunner acceptance by your trade.

*Write us. When would you like to have him stop in?

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.



BRUNNER SINCE 1906

AIR AND WATER COOLED MODELS
¼ HP. TO 25 HP.



Championship Performance

"DETROIT" SOLENOID VALVES

Powerful, reliable "Detroit" Solenoid Valves give championship performance. Over a period of many years, they have shown their excellence in handling refrigerant, water and other liquids not injurious to brass. They are quiet, and operate instantly and unfailingly.

★ **EASILY INSTALLED**—Substantial mounting boss on valve body provides easy means for rigid mounting.

★ **EASILY SERVICED**—May be disassembled for cleaning without disconnecting refrigerant lines or wiring.

★ **POSITIVE CLOSING**—Nonmagnetic needle and seat and strong "kick off" spring assure tight closing.

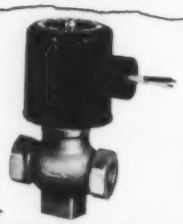
★ **POWERFUL**—Will lift against high pressure.

★ **QUIET**—Design of plunger and guide tube minimizes AC hum.

★ **DURABLE**—Moisture proof coils; bodies of nonporous cast brass; long wearing needles and seats; give these valves exceptionally long life.

★ **ECONOMICAL**—Current demand low (15 watts open on largest valve). Replacement parts if needed, are inexpensive.

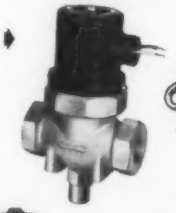
★ **FOUR LEAD COIL**—For either 115 or 230 volt, 60 cycle use available on any "Detroit" Solenoid Valve.



No. 686—A heavy duty pilot operated valve which requires pressure drop of only 1¾ psi on refrigerant, 5 psi on water. Two orifice sizes, ½" and ⅝".

Nominal Capacities—liquid line
(2 lbs. pressure drop)

½" orifice	11 tons Freon-12	23 tons Methyl
⅝" orifice	17 tons Freon-12	34 tons Methyl

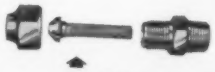


No. 683-3 Like all "Detroit" Solenoids, this valve is designed for use on any liquid not injurious to brass. Available with three orifice sizes, ⅛", ¼", ⅜".

Nominal Capacities—liquid line
(2 lbs. pressure drop)

⅛" orifice	1½ tons Freon-12	2¾ tons Methyl
¼" orifice	3 tons Freon-12	6½ tons Methyl
⅜" orifice	3¾ tons Freon-12	8¾ tons Methyl

⅜" female N.P.T. connections.



No. 685 Strainer—Fits any threaded solenoid valve. Fine mesh monel screen resists corrosion. Slips into adapter and is held in place by tubing and flare nut. Adapters furnished in three sizes of valve connection, and six sizes of tubing connection:

Adapters with ¼", ⅜" or ½" SAE tubing connection are available with ⅜" MPT valve connection.

Adapters with ½" or ⅝" SAE tubing connection are available with ½" MPT valve connection.

Adapters with ⅝" or ¾" SAE tubing connection are available with ¾" valve connection.

Cleaning or replacing strainer screen is very easy—just unscrew flare nut.



No. 681—Pilot operated for larger capacity; requires minimum pressure drop of only 1 psi to operate piston.

Nominal Capacity—liquid line
(2 lbs. pressure drop)
7½ tons Freon-12—17 tons Methyl
½" female N.P.T. connections.

5114

DETROIT LUBRICATOR COMPANY

DIVISION OF AMERICAN RADIATOR & Standard Sanitary CORPORATION

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, *MONTREAL, TORONTO, WINNIPEG*

"DETROIT"

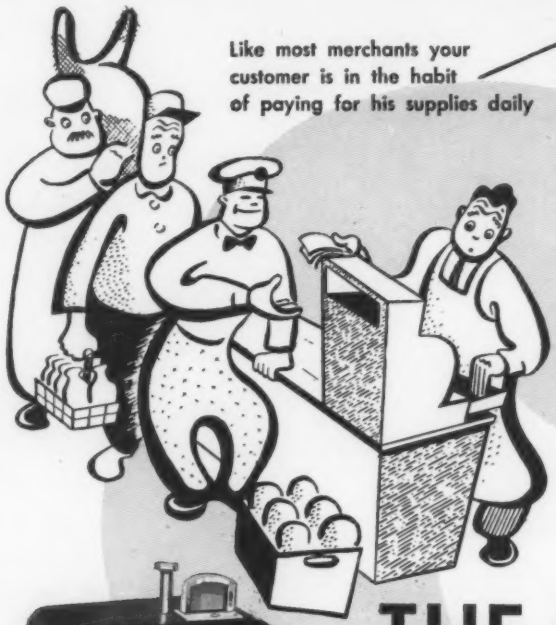
"DETROIT" HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER ACCESSORIES
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HAVING TROUBLE WITH COLLECTIONS?





Like most merchants your customer is in the habit of paying for his supplies daily

As a result, there is not enough left to pay lump sums for his refrigerating equipment at the end of the month

Your Answer Is

THE METER PLAN



Meter-Matic DM6 Meter

- LOW IN PRICE
- FULLY GUARANTEED
- IMMEDIATE DELIVERY

Your customer deposits only a few quarters a day that he never misses



And you hit the JACK-POT every month!

MAIL THIS COUPON TODAY

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INTERNATIONAL REGISTER COMPANY
Dept. 98M - 2626 W. Washington Blvd.,
Chicago 12, Illinois

Please send me FREE:

☐ How to Collect Delinquent Accounts
☐ Meter Plan for Selling Commercial Refrigeration
☐ Meter Catalog

Company.....

Mr.....

Street.....

City..... Zone.... State.....

Good-will Builder



the Wagner Fractional Horsepower Motor

If you manufacture, install, or service compressors, stokers, deep freeze units, pumps, or any of a hundred different motor-driven appliances—you have a special interest in dependable fractional horsepower motors.

Wagner Fractional Horsepower Motors are the first choice of many manufacturers of small machines and appliances. Millions of these small-sized, low-priced motors have been in use for years, giving troublefree performance and building customer satisfaction. Take a tip from these manufacturers and reduce service calls due to motor failure by choosing Wagner Motors. More than fifty-five years of motor building experience stands behind every motor bearing the Wagner name.

Twenty-nine branch offices, located in principal cities, are ready to assist you, without obligation, whenever you have a motor problem. Write for Bulletin MU-185 for information on the complete line of Wagner Quality Motors.



Type RK

Type RA

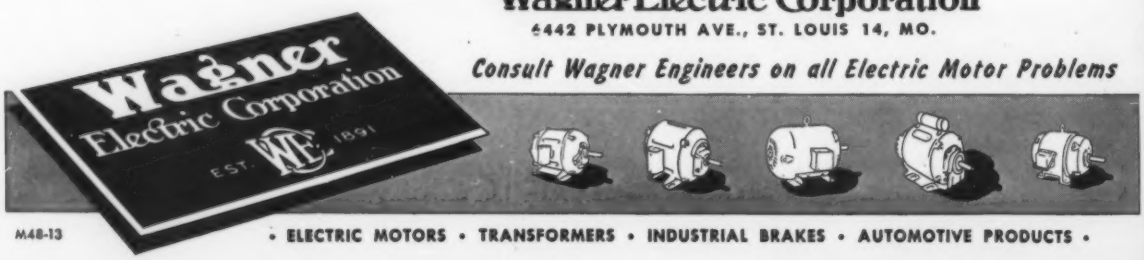


Many types and sizes of Wagner Fractional Horsepower Motors are now available from stock.

Wagner Electric Corporation

6442 PLYMOUTH AVE., ST. LOUIS 14, MO.

Consult Wagner Engineers on all Electric Motor Problems



M48-13

• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE PRODUCTS •

FEATURES are important

...but it's PERFORMANCE *that really counts!*

That is why Engineers Specify Sporlan *for Peak Performance on All Installations!*



Other Sporlan peak performers include Catch-All Filter Driers, Solenoid Valves, Strainers, Solenoid Pilot Control, Refrigerant Distributors, and the only Thermostatic Expansion Valves with Selective Charges

You can easily see SIX of the seven important features of the Sporlan Type G Thermostatic Expansion Valve

1. Stainless steel diaphragm atomic hydrogen welded in steel housing
2. New Sporlan decal name plate gives complete valve specifications at a glance
3. Triangular push rods effectively reduce friction and chance of moisture freezing rods in guides
4. New pin carrier design practically eliminates moisture problem normally occurring at valve pin
5. New reduced over-all length permits installing Type G valve in much smaller space
6. Easy accessibility. The Sporlan Type G Thermostatic Expansion valve can be quickly and easily taken apart for inspection and cleaning

But the SEVENTH and exclusive Sporlan feature you *cannot* see!

C CHARGE FOR *suction temperatures* ABOVE ZERO

The SPORLAN SELECTIVE **C or Z** CHARGE

Z CHARGE FOR *suction temperatures* BELOW ZERO

When you add the Sporlan Selective Charge feature to the other six important Sporlan features, you add the PERFORMANCE FACTOR that puts Sporlan out in front in the thermostatic expansion valve field!



SPORLAN VALVE COMPANY

For Peak Performance

on all commercial refrigeration installations, be sure to specify Sporlan Type G thermostatic expansion valves with selective charges to your wholesaler

7525 SUSSEX AVENUE • ST. LOUIS 17, MISSOURI



Suitable for shop or service truck

GILMER #355 V-Belt Assortment

Here's the foundation of a complete V-Belt department—in minimum space—with minimum investment. Records show these 50 refrigerator belts are the ones ordered most frequently . . . tallied most often on Gilmer sales records.

Included with this assortment are valuable merchandising aids listed at right—aids to speed servicing . . . to assure accurately fitted replacements of V-Belts.

Gilmer V-Belts are noted for firm grip, steady pulling power. Their heavy-duty jackets and stretch-controlled cords last longer in the *start* and *stop* wear of fast-moving small drives. Remember, Gilmer has the PULL. Order the #355 Assortment *today*.

Gilmer BELTS

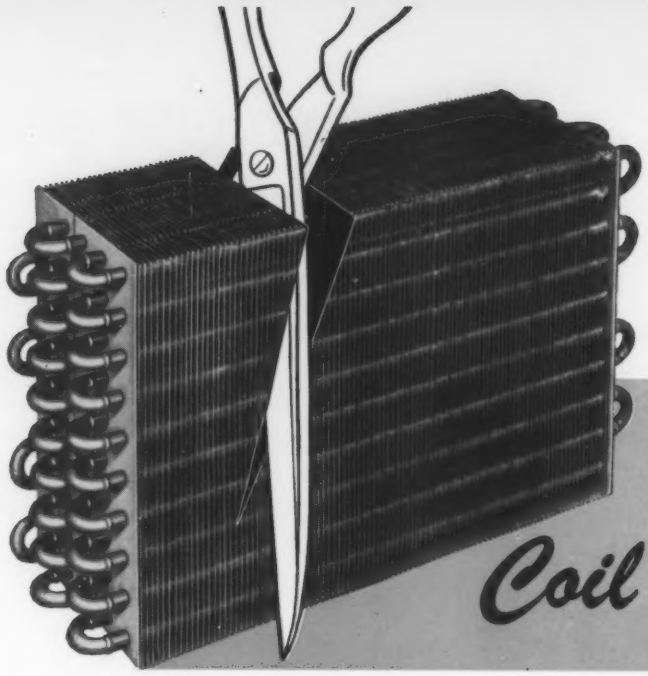
ASSORTMENT #355 CONSISTS OF

1. 50 V-Belts in 31 most popular sizes
2. 8-hook Metal Wall Rack
3. Gilmer Handimeter (patented) for quick measuring of belts
4. Gilmer V-Belt Catalogue, "America's Belt Bible"
5. Inventory Card
6. Attractive Window Display Card

Buy Through Your Gilmer Distributor

L. H. GILMER COMPANY, Tacony, Philadelphia 35, Pa.

Division of United States Rubber Company

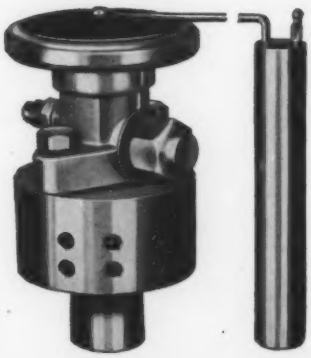


DON'T CUT *Coil Capacity*

Install ALCO MULTI-OUTLET THERMO VALVES

Faulty feed that "starves" several circuits often cuts coil capacity ⅓ to ½. Stop this costly waste with ALCO Multi-Outlet Thermo Valves. They assure:

- The refrigerant liquid is accurately metered at the point of expansion to all coil circuits
- Even distribution regardless of load changes
- Full rated coil capacity—no underfed circuits
- Positive, accurate control—no "hunting" or "cycling"
- Less running time—substantial savings in operating costs



Available at your wholesaler's for all refrigerants and applications: ½ to 50 tons FREON-12, 2 to 36 outlets. Ask for our Bulletin 180.

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

Slash VALVE INVENTORY COSTS UP TO *90%*



GENERAL CONTROLS engineering offers tremendous savings in inventory investment, stock space and handling costs.

For complete information on how to reduce your inventory costs with General Controls refrigeration valves request literature and see your refrigeration wholesaler.

The new selective capacity cartridge provides instant sizing adjustment.

The unsurpassed control for refrigerants. V-200 Thermal Expansion Valves available in ½, 1, 2, and 5 ton body sizes and for Freon, Methyl Chloride, Sulphur Dioxide.

COMPARE THESE FACTS...

ORDINARY VALVES	GENERAL CONTROLS V-200 VALVES
Separate valves for each back pressure or suction temperature range.	One valve for ALL back pressure or suction temperature ranges.
Separate valves for each capacity size.	One valve with selective cartridge for full range of capacities.

54-1

For Full Capacity Range in each body size at all back pressures with any one refrigerant

ONLY *One* VALVE REQUIRED FOR COMPLETE INVENTORY

NATIONALLY DISTRIBUTED BY REFRIGERATION WHOLESALERS

Cut Costs... Increase Profits with

GENERAL CONTROLS

Manufacturers of Automatic Pressure, Temperature & Flow Controls

FACTORY BRANCHES: Birmingham (3), Boston (16), Chicago (5), Cleveland (15), Dallas (2), Denver (10), Detroit (8), Glendale (1), Houston (2), Kansas City (2), New York (17), Philadelphia (40), Pittsburgh (22), San Francisco (7), Seattle (1), Oklahoma City (1) • **Distributors in Principal Cities**

Freezing Facts

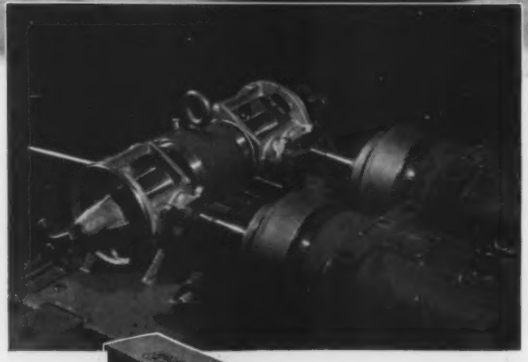
by Super

Two-at-a-time tactics

One of the favorite stunts in the trick bowler's repertoire is polishing off an "impossible" split without batting a bicuspid. He simply rolls two balls down the alley at the same time! You better not try it in a league game, though. The other team will raise a squawk . . . and the pin boy might demand a raise in pay.



A two-at-a-time operation is also a specialty of the Servel Supermetic plant. A high-precision boring machine turns the cylinder bores of two Supermetic compressors at the same time . . . producing perfectly true, exactly spaced cylinder bores that are accurately aligned at a 90° angle to the crankshaft.

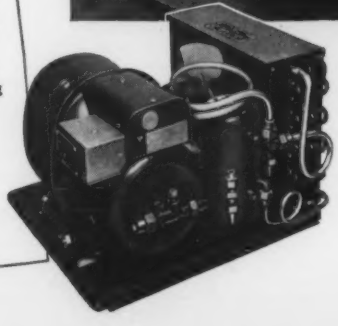


Servel's new "Supermetic" condensing units will serve dealers and fixture manufacturers in every vital field:

1. Store Fixtures
2. Milk Coolers
3. Home Lockers
4. Beverage Coolers
5. Vending Machines
6. Room Coolers
7. Farm Freezers
8. Water Coolers
9. Industrial Cooling
10. Vehicle Refrigeration

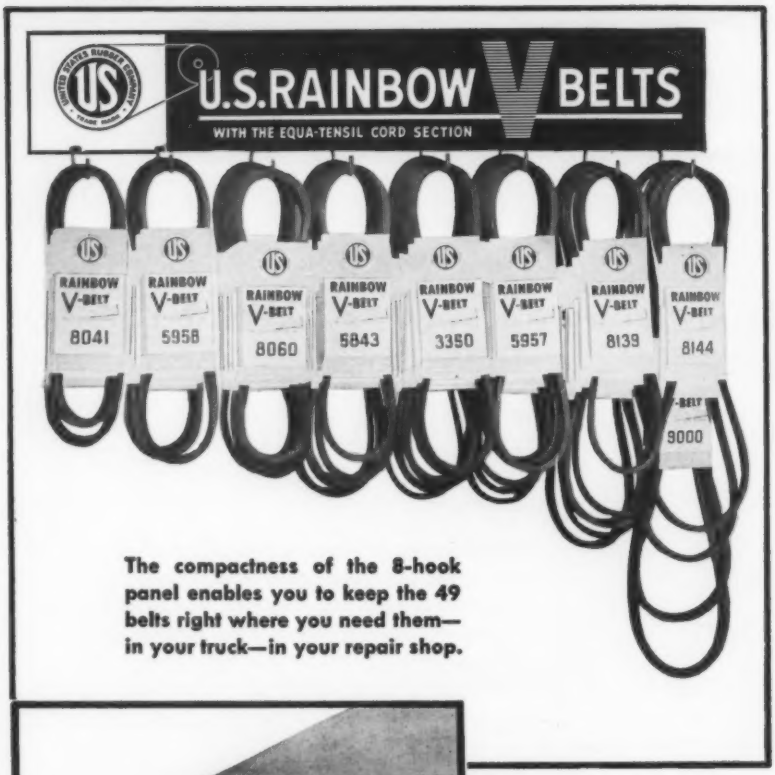
Servel

SUPERMETIC



This double-boring process is only one of the many precision operations that help assure you a condensing unit that will maintain long records of low-cost, trouble-free service through the years. Servel condensing units are made in all types and sizes for applications up to 5 H. P. Send for free copy of "Servel Supermetic" Address Servel, Inc., Division ER, 3809 Kentucky Avenue, Evansville 20, Indiana.

THE 49 V-BELTS IN GREATEST DEMAND



The compactness of the 8-hook panel enables you to keep the 49 belts right where you need them—in your truck—in your repair shop.



—in a Portable Assortment

Here in one convenient group are all the belts that can handle the majority of emergencies in the Refrigeration field.

These 49 Belts cover service on hundreds of domestic and commercial refrigeration units, ice cream machines, frozen-food plants, air-conditioning systems and other allied equipment. With this compact stock you can be ready with the exact belt needed.

Each belt has that unique U. S. Rubber development which provides greater pull and endurance—the Equa-Tensil Cord Section.

Order from your Jobber, or, for more information write Mechanical Goods Division, United States Rubber Company, 1230 Avenue of the Americas, New York 20, N. Y.

PRODUCTS OF

U.S.RUBBER

SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

The Mark of Quality

DRY...

Normal Flow Without Pressure Drop

Weatherhead's newly designed *silica gel* dehydrators and filters assure thorough removal of moisture and impurities from refrigerants — with continued normal system operating efficiency.



Look Ahead with

THE Weatherhead CO.

CLEVELAND 8, OHIO

PLANTS AT CLEVELAND, OHIO • ANGOLA, INDIANA • COLUMBIA CITY, INDIANA • HOUMA, LOUISIANA • ST. THOMAS, ONTARIO, CANADA



Let H.V.E. save your Refrigeration Dollars

HERE'S WHY H. V. E.—high volumetric efficiency—in a compressor means *low* refrigeration costs:

In a compressor with H. V. E., every stroke of the piston pushes the greatest possible amount of refrigerant gas out of the cylinder, through the discharge valves, into the refrigeration system.

If the compressor *doesn't* do just that, gas left behind the discharge valves re-expands—and the compressor is idling part of the time. Your customer is paying for energy he's not putting to work!

You can *end* this waste, cut down costs, with a G-E compressor. *Every* G-E compressor is built throughout for High Volumetric Efficiency. Accurate piston-cylinder fit, assuring low blow-by . . . minimum clearance between valve plate and piston . . . thin plate with easy-lift, wide-opening valves . . . these features all add up to the most refrigeration for your customer's power dollar.

Yes, for H. V. E., just see G. E.! Ask your General Electric district representative for full information—he's ready to work with you at all times.

General Electric Company, Air Conditioning Department, Section 8149, Bloomfield, New Jersey.

GENERAL ELECTRIC

MAKE A GENERAL ELECTRIC CONDENSING UNIT
THE HEART OF YOUR REFRIGERATION SYSTEM

There are **PROFITUNITIES** all around you...

for sales of Triple Service

OASIS
ELECTRIC WATER COOLER

Bottle-type unit that makes its own ice cubes has refrigerated storage compartment of long-lasting "MONEL"

Here's a streamlined beauty—and it's packed with sales possibilities for you.

This new Model OBR *Oasis* Electric Water Cooler does 3 things:

- **supplies properly cooled drinking water**
- **provides roomy, refrigerated storage space big enough to hold tall, 32-oz. bottles**
- **makes its own ice cubes. Two trays of 'em—28 generous cubes**

You can probably think of at least a dozen places that can use one of these coolers. Small business offices, for example—or hospitals, dentists' or doctors' waiting rooms, private clubs, gymnasiums—just about any place that needs drinking water, a limited amount of refrigerated space and occasional ice cubes.

Offered to you only after more than two years of intensive research, testing and proving, this new *Oasis* cooler is fully automatic. Its maker, THE EBCO MANUFACTURING COMPANY, says: "There aren't any troublesome valves to bother with. Steady, reliable temperature controls handle the different gradations of cold required in the water-cooling, storage and ice cube unit. Nobody can freeze the water storage tank—or fail to freeze the ice cube compartment."

And nobody, we might add, can find anything but praise for the attractive, easy-to-maintain storage compartment of the *Oasis*. It's made entirely of sanitary, satin-finish Monel*, the same corrosion-resistant metal that has been standard for quality food service units for over 25 years.

Monel is solid, rustproof metal through and through. It has no coating or surface protection to peel off or wear away. Stronger and tougher than structural steel, Monel stubbornly resists wear and corrosion. Its surfaces are hard and smooth; they're kept clean with a minimum of effort.



TAKES LITTLE SPACE—DOES BIG JOB. *Requiring a floor space only 15 inches square, the Model OBR* Oasis *cooler supplies drinking water, provides refrigerated storage space, makes ice cubes. Operates on 110-volt, 50-60 cycle single phase AC. DC, odd-cycle and other voltage models available. All have Monel refrigerator compartments.* Photo courtesy of The Ebco Mfg. Co., Columbus, O.

Because of all its features, the EBCO Model OBR *Oasis* offers tremendous sales—and profit—opportunities for you.

For full details about *Oasis* Electric Water Coolers, write THE EBCO MANUFACTURING COMPANY, 401 West Town Street, Columbus 8, Ohio. Tell them you saw this advertisement in *The Refrigeration Industry*, and they'll get complete information to you promptly—and without obligation.

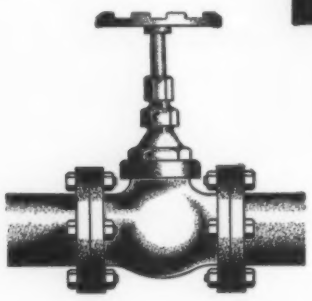
*Reg. U. S. Pat. Off.

MONEL*... A Standard Mark of Quality Equipment

EMBLEM OF SERVICE INCO TRADE MARK

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N.Y.

NEW USE FOR THORS



on Valves, Flanges & Headers!

THORS which is a great helper in preventing sticking freezer doors and in defrosting coils and plates now has another important job—on and around valves, valve handles, flanges and headers. THORS reduces the icing-up of valves—makes them easy to open and close *at any time!* That's worth plenty in an emergency!

Instead of the ice which clings on tight without THORS and has to be pounded off at the risk of real damage—*after a coating of* THORS the ice that accumulates comes off easily. Just a light tap and it falls off *with no damage* to valve or stem! THORS also acts as a lubricant between valve stem and packing and it tends to protect the valve stem against corrosion.

When THORS is used on flanges, it permits flange nuts to be tightened up easily and quickly, preventing leakage of the refrigerant. Flanges should be coated with THORS so that the ice can be *gently and easily* tapped off the flange whenever the nuts are to be tightened.

THORS is a clean, odorless, semi-solid product which will not corrode black iron, alloy, steel and galvanized metal surfaces. It is inexpensive—it lasts a long time—it saves you money for costly freezer repairs.

THORS
Reg. U. S. Pat. Off.

YOU CAN'T LOSE!

For further information, mail coupon or consult your supply dealer.



STANCO INCORPORATED
216 W. 14th Street, New York 11, N. Y.

Stanco Incorporated . . . . Dept. R. 1
216 West 14th Street, New York 11, N. Y.

Please send me without obligation free literature on THORS.

Name .....
Address .....
City ..... State .....

LETTERS

Kerosene Units Wanted For Export Sale

THE REFRIGERATION INDUSTRY:

We have taken the liberty of writing to you in the hopes of being able to track down the rumor that there is about to appear, or already is on the market, a 4 cubic foot domestic refrigerator.

This machine may be had either for electric or kerosene operation.

Any assistance you can give us on locating this manufacturer shall be greatly appreciated.—A. Rosello, World Export and Import Co., Havana, Cuba.

A domestic refrigerator answering this description is currently being manufactured by Servel, Inc., Evansville 20, Indiana.—Editor.

Glad To Do It, Podnuh! That's Our Job

THE REFRIGERATION INDUSTRY:

We wish to thank you for your letter of July 8th in which you enclosed names of prospective customers of our #27 "Scotch" electrical tape.

We are very grateful for your forwarding these names to us and action has been taken in each case. Thanks again for your wonderful cooperation.—W. H. Madden, "Scotch" Electrical Tapes Div., Minnesota Mining & Mfg. Co., St. Paul, Minn.

You are welcome, indeed. We consider it one of our prime functions as an industry publication to serve as a "market place" where buyers and sellers of refrigeration equipment and supplies can meet to transact their business.—Editor.

Do Any Of Our Readers Know?

THE REFRIGERATION INDUSTRY:

I am looking for a roll type recording chart that would last for 8 days or more and would record evaporator temperature, room temperature, and the on-and-off cycle, all on one chart.

Can you tell me who makes a chart of this type?—Robert P. Zybach, Bay City, Mich.

We have made some investigations, and so far as we can learn no one instrument to make all of these recordings is available.

There are, however, charts which wil show evaporator and room temperatures together, and others which will show fixture temperature and off-on cycle together. These units are made by Bacharach Industrial Instru-

OUT AT FIRST . . .



or a Hit?

The difference LOOKS small . . . but it makes you a Bambino or a Busher

Take two unit coolers, for example. They look pretty much alike . . . they're rated alike . . . they may even perform alike (for the first week, or the first month, or perhaps for the first year). But sooner or later, as the sports announcers say, comes the clutch . . . the pay off. Service calls to you. That's when top design and superb engineering show up . . . when you learn whether the rating on your unit was fact or fancy bu - - . . . well, just fancy. That's when expert workmanship and materials really count . . . when you learn whether your unit can "take it" . . . when you first appreciate that trade mark. And that's when you either go ahead to the "big time" or back to the minors. That's when, if you have not already, you decide to *"buy the Best . . . and the Best is Bush"*.



Ask your wholesaler for your copy of the BUSH ENGINEERING DATA BOOK . . . *or write us direct. All* BUSH *Heat Transfer Products are* AVAILABLE NOW *through leading refrigeration and air conditioning wholesalers everywhere.* WRITE DEPT. C-2 for NEW BUSH CATALOG.

BUSH MANUFACTURING CO. • WEST HARTFORD 10, CONN.

Bush
HEAT TRANSFER PRODUCTS

FOR QUIET PERFORMANCE



on your next job choose a

MILLS

a condensing unit for every installation

Mills Industries, Incorporated • 4100 Fullerton Avenue • Chicago 39, Illinois



RESULTS COUNT

MORE PRODUCTS ON DISPLAY MEAN GREATER SALES

FEDERAL MODEL 1089

NEW Federal Self-Serve Reach-In gives you most display for your money . . . 94½ sq. ft.

Here's eye-appeal for streamlined selling! Easy working rubber doors, fluorescent lighting, metal clad baked enamel exterior. . . . Uses small space for large display, for dairy products, bottled goods, and all kinds of produce.

Federal

FEDERAL REFRIGERATOR MFG. CO.
WAUKESHA • WISCONSIN
ASK ABOUT DESIRABLE TERRITORIES STILL AVAILABLE . . . WRITE FOR DETAILS

LETTERS

ment Co., 7000 Bennett St., Pittsburgh 8, Pa., and C. J. Tagliabue Mfg. Co., Park & Nostrand Aves., Brooklyn 5, N.Y.

We believe that your refrigeration supply wholesaler would be able to get these for you, if he does not have them in stock, and chances are that you would get faster service from him than by contacting the manufacturer directly.—Editor.

(Note: If any of our readers know of any such recording chart as described by Reader Zybach, we would be interested in hearing from them.)

Who Manufactures Flake Ice Makers?

THE REFRIGERATION INDUSTRY:

Can you advise us of a source of ice chip or flake machine other than York? This information will be appreciated.—Kryzer Refrigeration Service & Equipment, Hays, Kans.

Machines of this type also are manufactured by Vilter Mfg. Co., 2217 South 1st St., Milwaukee 7, Wisc., and Belt-Ice Corp., 2845 16th Ave., West, Seattle 99, Wash.

A machine which produces ice in tube form is manufactured by Vogt Machine Co., 10th & West Ormsby Sts., Louisville, Ky.—Editor.

Information Wanted On Grunow Service

THE REFRIGERATION INDUSTRY:

In your issue of THE REFRIGERATION INDUSTRY of October, 1945, you published the second part of an article entitled "Profits in Grunow Service" which makes reference to Table 1 contained in the first part of this article which was published in your issue of August, 1945. I have somehow misplaced my copy of this August, 1945 issue. Could I by any means obtain a copy of this issue or of the article containing the aforementioned Table 1?—J. H. Boggs, Boggs Refrigeration Service, 3917 River Rd., Columbus, Ga.

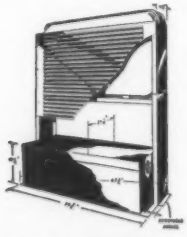
To Reader Boggs, who like many another reader of THE REFRIGERATION INDUSTRY *finds his file of year-old copies of this magazine a source of ready reference, we gladly sent a copy of the issue requested.—Editor.*

Pakaged REFRIGERATION

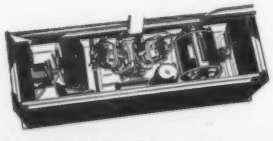


THE NEW KOLD-HOLD *Pakage* TRUCK UNIT for HIGH TEMPERATURE REFRIGERATION OF PERISHABLES . . .

The New Kold-Hold Pakage Refrigeration Unit means lower costs . . . added dividends to you. Its simplicity of installation and operation is the highlight of its success wherever high temperature perishables are transported by truck. Check the following features of the New KOLD-HOLD PAKAGE REFRIGERATION UNIT.



Self-contained, adjustable to almost any truck. The Unit can be lowered to 46¾" for installing through truck door. When installed, height can be adjusted for 57" minimum to 78" maximum heights.



The electrically driven compressor builds up a charge of flint ice in the "Hold-Over" Plates, which provides ample refrigeration over a day's run.

1. Operates efficiently, economically in any properly insulated truck, regardless of age.
2. Easily installed—simply cut intake and discharge holes, push into place, plug into any 110AC-60 Cycle Circuit*.
3. Maintains inside truck temperatures of 45° F. to 50° F. over a full day's run.
4. Provides ample refrigeration even in extreme weather conditions.
5. Recharging plates at any electrical outlet protects loads on long runs.
6. The 1 HP Compressor operates for a few cents a day.
7. Dry and odorless—no bother. Dependability at lower cost.
8. Kold-Hold "Hold Over" Refrigeration plates such as used in this unit have given satisfactory service for over 15 years.

**A 200V-60 Cycle Single Phase motor can be supplied on request.*

The Kold-Hold Catalog contains information on the entire line of Kold-Hold Refrigeration Products. Write for your free copy today!



KOLD-HOLD

Jobbers in Principal Cities

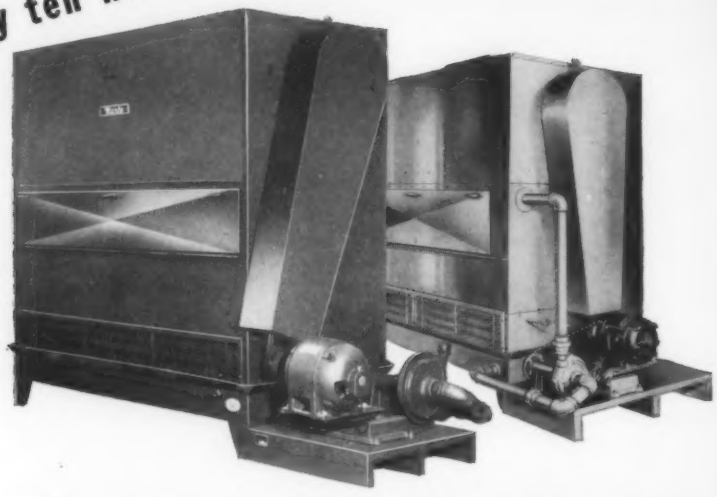
PROCESSING TRANSPORTATION STORAGE

protects every step of the way

KOLD-HOLD MANUFACTURING COMPANY - 503 E. HAZEL ST., LANSING 4, MICHIGAN



save nine drops of every ten with these MARLO "water-misers"*



Where water is scarce and expensive — or where sewerage is inadequate — these "twin" Marlo Cooling Towers and Evaporative Condensers solve the problem.

Compact and efficient, they use the same water over and over — save 90% of normal water consumption and water cost—save space! And they're built so sturdy that many in use over 10 years are still giving faithful, economical service.

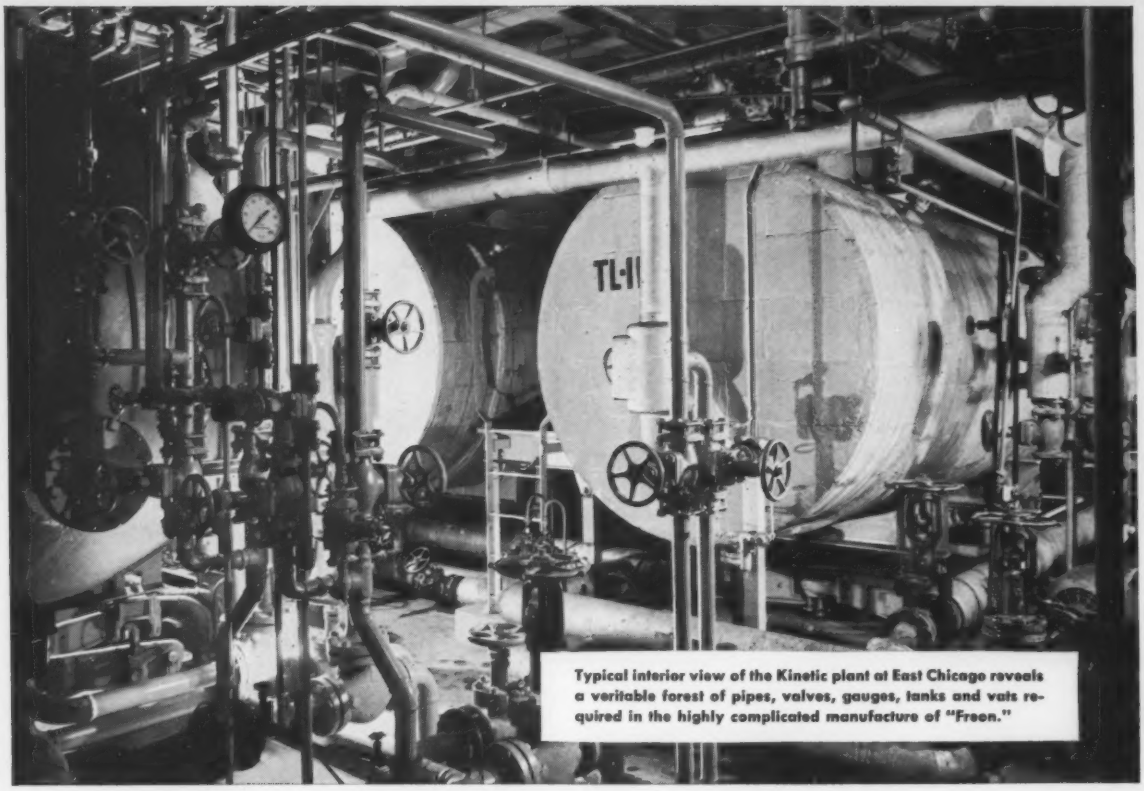
*MARLO COOLING TOWERS and EVAPORATIVE CONDENSERS

Ultra-modern A. S. Aloe building in New Orleans—11,000 sq. ft., completely air conditioned, using a Marlo EC 40 Evaporative Condenser.



MARLO = HEAT TRANSFER
Since 1925

MARLO COIL CO. / ST. LOUIS 10, MO.



Typical interior view of the Kinetic plant at East Chicago reveals a veritable forest of pipes, valves, gauges, tanks and vats required in the highly complicated manufacture of "Freon."

NOW . . . 60% more "Freon" . . . as new Plant Increases Production

The new Kinetic plant manufacturing "Freon" safe refrigerants and propellents at East Chicago, Indiana, is now in full operation. Here, technical skill, engineering "know how," and minute-by-minute control of the precision "Freon" syntheses have combined to boost total production of "Freon" approximately 60 per cent.

This added production capacity now makes available an ample supply of "Freon." No longer will users of these refrigerants have reason for individual stock piling. There is plenty of "Freon" to meet *every* need.

A steadily growing demand for "Freon" continues to illustrate widespread preference for these quality refrigerants. Most leading manufacturers of air conditioning and refrigerating equipment now use them. They recognize that the exceptional dryness (less than 10 parts of moisture in a million parts of "Freon"!) . . . plus the uniform purity and quality of "Freon," contribute to the long life and satisfactory performance of their modern, compact units.

That is why more "Freon" is now being used than ever before . . . and why it became necessary for Kinetic to expand its production facilities. It is also another reason why today cautious buyers of equipment are careful to determine that it utilizes these safe refrigerants. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

The shortage of cylinders continues. "Freon" cannot be shipped without them. Please return empties promptly.

KINETIC
REG. U. S. PAT. OFF.

FREON
REG. U. S. PAT. OFF.
safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE-MARK FOR ITS FLUORINATED HYDROCARBON REFRIGERANTS AND PROPELLENTS



for

FRESH MEAT

WITH THERMOBANK

by KRAMER

Only THERMOBANK keeps
Coils Frost-Free *Automatically*
at any Temperature
without
- LABOR
- ATTENTION
- ELECTRIC HEATERS
- BRINE OR WATER SPRAYS

WRITE FOR BULLETIN R147

KRAMER TRENTON CO. *Trenton 5 N. J.*

ITS NYLON SEAT DISC • • • •

Ends YOUR SEATING TROUBLES

THE EASIEST AND SUREST SHUT-OFF MADE FOR REFRIGERATION USE.



THE *New*

MUELLER BRASS CO.

Packless line valve...

Molded nylon is the seat material for which the valve industry has been searching for years.

Molded nylon seat disc will stand up to regular charging board usage.

- The easiest shut-off in the field.
- Phosphor bronze and stainless steel diaphragms.
- Ports-in-Line.
- Large Hand Wheel.
- No Springs.

AVAILABLE NOW

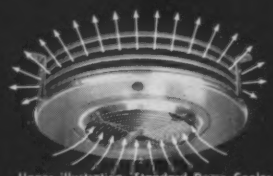
ORDER FROM YOUR WHOLESALER

MUELLER BRASS CO.

PORT HURON, MICHIGAN

Choice of the Field!





Upper illustration: Standard Dome Cooler with air emitting in all directions.

Lower illustration: Two-way Dome Cooler with air flow limited to two directions.



PEERLESS DOME COOLER

● For top performance in reach-in and walk-in coolers, install the PEERLESS DOME COOLER, the motor-driven cooling coil with a long history of satisfactory service. In the new, improved 1948 model you have the finest performance yet in this type of cooling coil. It's easily installed and occupies minimum space. The handsome spun aluminum casing holds precision-engineered parts which insure dependable, trouble-free operation. Air is drawn up in the center of the unit, cooled, and discharged horizontally along the fixture ceiling to drop down the side walls. This efficient, constant cooling cycle maintains high humidity, keeping stored products at the peak of their quality. Use PEERLESS motor-driven cooling coils. You'll find that today's outstanding cooling coils are PEERLESS-MADE!



CASCADE COOLER

CASCADE COOLER This motor-driven coil combines radiant and convection cooling. Even the ornamental casing is a cooling surface! Cold air cascades downwardly from the face of the unit, which hugs the wall, saving storage space.



UNIT COOLER

UNIT COOLER This is the new PEERLESS "PIE PLATE" with all primary and secondary surfaces IN THE AIR STREAM. There is no waste surface in this condensed package of refrigeration power.

FOR BOX TEMPERATURES ABOVE 32°
FOR USE WITH FREON, METHYL CHLORIDE AND SULPHUR AS REFRIGERANT
SEND FOR ENGINEERING DATA AND PRICE LISTS

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IMPERIAL TRIPLE-SEAL FLARE FITTINGS

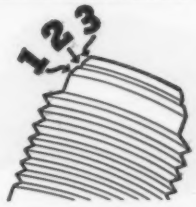
To Give You Joints with Triple-Seal Tightness...

For extra protection against leakage the Imperial Triple-Seal Fitting has a groove in the seat which brings you triple-seal tightness in every joint.

Here is how it works. When the flare nut is drawn up, the copper tubing is forced into the groove making a tight, self-sealing joint. This joint will remain leakproof even though the face of the seat may be nicked or marred. This Triple-Seal feature is included on all sizes ⅜" and larger.

Additional protection against leakage is provided by extra length pipe threads which are longer than formerly on sizes ¼" and over. This extra length is especially valuable where reconnection is necessary.

Specify Imperial Triple-Seal Flare Fittings to get this extra protection against leakage. Remember they cost you no more. All flare ends protected by plastic caps. Ask for Catalog 80 on Imperial Refrigeration and Air Conditioning Products.



Imperial Triple-Seal Flare Fittings have three seals to give you new, extra protection against leakage.

SEE YOUR JOBBER

IMPERIAL

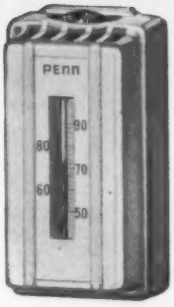
The Imperial Brass Mfg. Co., 534 S. Racine Ave., Chicago 7, Ill.

Fittings • Valves • Filters • Driers • Floats • Charging Lines
Tools for cutting, flaring, bending, coiling, pinch-off and swedging.

Penn Series 221 Solenoid Valves perform dependably in a wide variety of refrigeration applications.

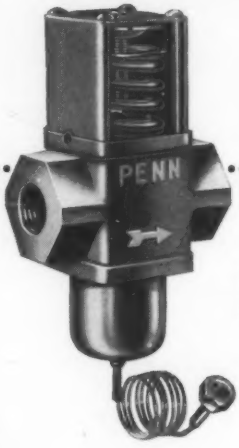


Penn Cooling Thermostat is recommended for applications where close and accurate temperature regulation are required.





Penn 270 Series Refrigeration Controls incorporate 2-pole construction and a direct-reading calibrated scale which shows both cut-in and cut-out points.



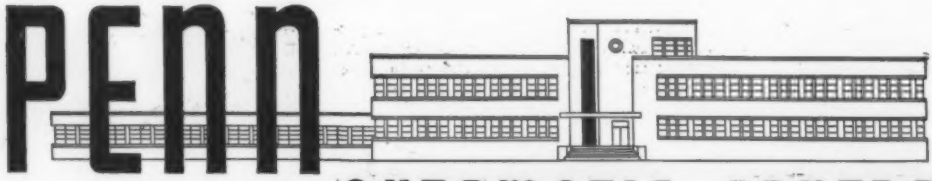
Penn Series 246 Water Valves are built in threaded and flanged styles and in sizes from ⅜" to 2½".

SWITCH TO *Penn* FOR DEPENDABILITY

Precision built for accuracy and long life, Penn refrigeration and air conditioning controls deliver the dependable service which satisfies your customers, protects your profits. There are Penn Controls for all types of temperature and pressure applications.

Featured in the line is the new 270 Series Penn Control, the first and only one in these fields to have a load-carrying two-pole switch. The 270 is versatile as well as dependable—it can control multiple refrigeration systems, two separate load circuits and (where protection is provided against single phasing) it controls polyphase motors of 3 h. p. and under without the use of line starters.

Switch to Penn for the satisfaction and profit opportunity which comes with dependable control performance. Ask your wholesaler for information on Penn's complete line of refrigeration controls or write to **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada, Penn Controls, Ltd., Toronto, Ontario.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

BTU's

News • Laws • Trends

Education Goes East

SECOND in the round of educational conferences to be co-sponsored this year by the Refrigeration Equipment Manufacturers Association and the Refrigeration Service Engineers Society will be held Oct. 8-10 at Hotel Bradford, Boston, Mass. Host at this meeting will be the New England States Association of RSES.

This conference will follow closely the pattern of the one held at San Francisco earlier this year (see page 47 of THE REFRIGERATION INDUSTRY for June), and like it will be strictly educational in nature.

Between 80 and 100 manufacturers are expected to exhibit cutaway and working models of their equipment, showing how their product is made, how it works, and how to service it. Top notch speakers from many fields will highlight the three-day educational sessions.

Housing arrangements are being handled by James A. McCue, chairman of housing committee, 801 Beacon St., Boston 15, Mass.

Air For Art's Sake

IRRITATING reflections, one of the most baffling of art gallery problems, will be done away with when the war-damaged rooms at England's National Galleries are reconstructed. Air conditioning will enable the pictures to be shown without being protected by glass.

By keeping the air in the galleries at constant temperature and humidity conditions, and by keeping it filtered free of dust and other impurities, it has been found that even the oldest paintings can be kept in good condition indefinitely without the use of glass, thus eliminating the danger of glare and reflection from the light source.

Data on Production Costs

EXPANSION problems of industry and the search for plant sites are materially aided by a new survey of production costs in six manufacturing areas of the United States.

The report, issued by the Haynes Foundation of Los Angeles, deals exhaustively with pre-war trends now being resumed, with an intimate picture of the markets of all durable and non-durable goods in the cities of Chicago, Pittsburgh, Los Angeles, Detroit, San Francisco, and Cleveland in the decade 1929-1939.

Titled "Production Cost Trends in Selected Industrial Areas," the impartial study has been presented by Dr. Philip Neff, acting chairman of the department of economics, Pomona College, and abounds in tables and statistics. It carries the imprint of the University of California Press, Berkeley, and is sequel to "An Economic Survey of the Los Angeles Area," by Frank L. Kidner and Philip Neff, published by the Haynes Foundation in 1946.

Aluminum Tubes Check Corrosion

ALUMINUM Co. of America recently uncovered a mighty fine testimonial for its own product when an inspection was made of a 12-year-old installation in the company's New Kensington power plant.

The aluminum tubes which had been used in the plant's condensers and heat exchangers proved to be virtually unaffected by corrosion. Outside surfaces of these aluminum tubes were as clean as the day they were installed; only signs of corrosion on the inside surfaces were a few shallow pits.

It is evidence like this which is resulting in the increasing use of aluminum tubes in heat exchangers and condensers in a variety of applications, including ammonia or Freon refrigeration and air conditioning systems, Alcoa claims.

Tummy Is 40-Ounce Pantry

"THEY told me years ago that the human tummy has a capacity of 40 ounces, and that a human being has to decide whether that capacity is to be filled with candy, cake, steak, or ice cream, or a neatly distributed portion of them all."

That statement by Charles Paino, past president of the National Association of Retail Ice Cream Manufacturers, explains, at least in part, why many food processors are leaning more and more heavily on food freezing techniques. They're all out for anything which will enable them to present their product to the consumer in more tasty and appetizing form, thereby assuring it a somewhat greater share of that 40-ounce space!

Government Experiments Continue

SEVERAL livestock studies involving refrigeration as a means of food processing and preservation currently are being conducted by the U. S. Department of Agriculture under the Research and Marketing Act.

A study of meat processing, including curing and freezing, is being carried out by the Bureau of Animal Industry. Object of this study is the development of processing methods that will better preserve the food value and palatability of meats.

One of RMA's regional projects in the north central states is a study of the place of frozen food locker plants and home freezer units in the slaughtering, processing, distribution, and consumption of meats. Information obtained in this research project will help give direction to the industry in the future.



Gleaming stainless steel surfacing makes the "heart" of this 23-stool short order restaurant as attractive as it is efficient. The serving area measures only 15 x 20 feet overall, yet it contains $15,000 worth of special-purpose refrigeration equipment.

SHORTER ORDERS = LONGER

These lunch counter operators have discovered that a maximum of cooling equipment results in a minimum of wasted time—and wasted profits. Here is the story of how they have put this knowledge to most effective use in their newest "beanery"



George Smith and Bill Johnson, proprietors of the "Country Kitchen", beam happily at the results achieved by their custom-tailored cooling installation.

IN a short order restaurant, adequate refrigeration equipment means even shorter orders—and lots more of them.

That's the eloquent testimony of George Smith, who, in partnership with Bill Johnson, runs the Country Kitchen on Vine Street in Elmwood Place, Ohio, a suburb of Cincinnati.

"Time literally is money in our business," Smith declares, "and by saving us time our refrigeration equipment actually is paying us dividends.

"Like most hamburger stands and short order restaurants," he explains, "a great deal of our volume each day

is concentrated in a few rush-hour periods. During these periods, every minute we save in serving one meal means just that much more time we have for serving others. Naturally the more meals we serve during these limited rush periods the more money we make."

You don't have to be a crystal gazer to see that Smith and his partner, Johnson, who originated the Country Kitchen and still manages the original establishment in another section of Cincinnati, are completely sold on the advantages of the special-purpose refrigeration equipment which helps make their business hum.

You don't even have to talk with them to find that out.

All you have to do is walk up to this bustling Elmwood Place lunch counter and take a gander at the $15,000 worth of equipment which was designed for this establishment by George L. Sullender of C. Loth, Inc., Cincinnati distributor of commercial refrigeration, store fixtures, and restaurant equipment.

PROFITS

Sullender, a Loth salesman for nearly 30 years, worked closely with the two partners in developing for this Vine St. version of the Country Kitchen a layout which utilizes refrigeration in every conceivable way to expedite the storage, preparation, and serving of the foods which constitute the restaurant's appetizing but limited menu.

Basis of the plans for this up-to-the-minute, 23-stool food service establishment was the layout of the original Country Kitchen for which Sullender also designed and sold the equipment. On the basis of their operating experience with this original unit, the partners were able to suggest many improvements in layout and equipment design.

More than nine months was devoted to the preparation of plans for this restaurant between the time that the lease was signed and the time that the building was occupied.

No smallest detail was overlooked. Every effort was made to provide for the utmost in efficiency, and for the use of refrigeration equipment in every place and in every way that it was felt would promote this end.

Yet less than two months after the new establishment had opened its doors the partners had already begun to realize that even more extensive refrigeration facilities, especially insofar as bulk storage is concerned, could have been effectively utilized.

Among the more novel applications of refrigeration equipment in this compact and efficient short order establishment is the use of four sliding doors located in a refrigerated area immediately beneath the range unit. These drawers, of the self-closing gravity operated type, are used for the storage of sliced meats and other quick-fry foods and can be readily reached by the chef without moving away from the range.

Some refrigeration experts frowned upon the location of these refrigerated drawers, Sullender reports, claiming that because of their proximity to the heat of the range unit that it would be impossible to maintain them at the desired temperatures. The partners, however, insisted upon the installation of this time-saving convenience, and now their judgment has been justified, for these drawer-type refrigerating units are performing with perfect satisfaction.

At one end of the range is another unique refrigerated arrangement which makes for speedier, more efficient operation. This unit is a refrigerated reach-in cabinet standing 52 inches high and measuring 30 inches in width and 42 inches in depth.

In addition to being fitted with two standard service doors on the front of the cabinet, the top half of this unit is equipped with a special

Continued on page 79

These self-closing refrigerated drawers located immediately beneath the range unit enable the fry cook to reach sliced meats, cheese, etc. without moving from his tracks.



The sliding door especially built into the side of this reach-in cabinet puts such "makings" as raw hamburger, pickle, and dressing within easy reach of the chef.



Center section of this refrigerated back bar is used for supplementary storage of foods. End units are used for bottled beverages, and are equipped with top lids.





Wayne Lundquist is learning the refrigeration and appliance game from the top down —literally! He married the boss's daughter now runs her father's company.

HE STARTED AT THE *Top*

Cogent counsel from his seasoned sales and service executives has enabled this "greenhorn" to make a good showing with the commercial refrigeration and appliance job which he inherited through marriage

MARRYING the boss's daughter is a big help to any young man who, although thoroughly green and utterly inexperienced, aspires to get ahead in the commercial refrigeration and appliance merchandising field. But of even more importance is the sound advice of wise counsel which can be obtained from a carefully selected group of seasoned "old hands" among the company's employees.

Wayne A. Lundquist, store manager of Gillespie Appliance Co. (which prides itself on being the "largest appliance store in Corpus Christi, Tex.", has tried both systems, so he should know.

Lundquist fell heir to the job of running this enterprising new merchandising organization in this bustling Gulf Coast city when he married the daughter of H. C. Gillespie, Jr., who founded the firm four years ago in partnership with Otis McNabb.

The refreshing thing about Lundquist, who looks more like a college boy than a business executive, is that he readily admits his inexperience. "Sure, I'm young and I'm ignorant," he grins, "but I've already found out that the key to success for a young man in this business is the building of a closely coordinated team of veterans who have been in the game long enough to know their way around, and on whom he can call for assistance in formulating important plans or in making vital decisions."

Lundquist has just such a team in the persons of J. A. Johnson, sales manager; Barnie Owen, service manager; and J. E. Sampson, commercial sales manager. These men, plus the two owners of the company, constitute what Lundquist jokingly refers to as his "kitchen cabinet", and whenever he is faced with a troublesome problem he wastes no time in enlisting their aid and assistance.

Right now these members of Lundquist's "privy council" are busily engaged in working out a plan to fur-



This is the new $30,000 home of the fast-growing Gillespie Appliance Co. Hardly was this layout completed than the firm's rapid expansion necessitated a $6,000 addition to its sales and service facilities.

RECOLD PATENT UPHELD



U. S. CIRCUIT COURT OF APPEALS UPHOLDS WATER DEFROST PATENT!

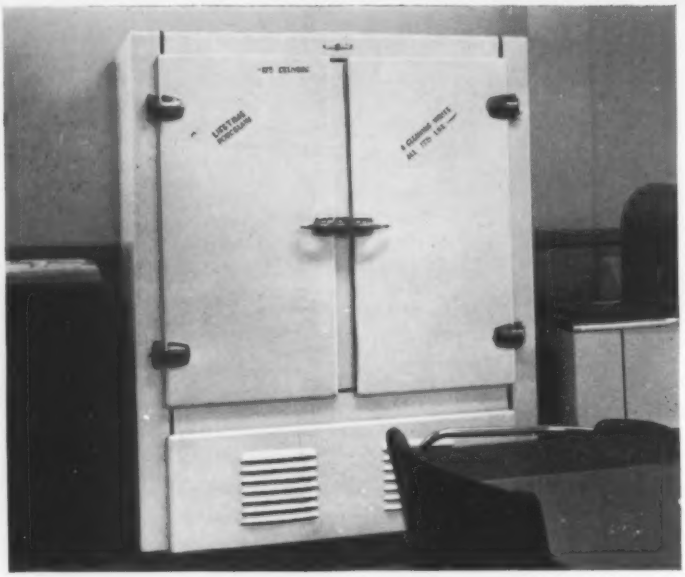
For the second time the United States Patent covering the Recold Water Defrost Coil has been ruled VALID and INFRINGED! Once again Refrigeration Engineering, Inc. have proved their claims! On June 29, 1948, the United States Circuit Court of Appeals for the Ninth District handed down a decision in the action brought by York Corporation in favor of our company. In their decision the Circuit Court of Appeals not only upheld the decision of the District Court, but modified the ruling of this court and ruled that two additional claims were valid.

"Recold Products Have A Dependable Record of Performance"

RECOLD

REFRIGERATION ENGINEERING, INC.

7250 East Slauson Ave. Los Angeles 22, Calif.



Selling Signs

"SELLING signs" which are stencilled directly on the surfaces of commercial refrigeration equipment with water-soluble paint have proven an excellent merchandising idea at the Wallace-Johnston Co. in Memphis, Tenn.

Wallace-Johnston Co., long one of the largest appliance dealerships in the mid-South, several years ago opened up a large commercial refrigeration department to match. Included among the commercial items handled are walk-in and reach-in storage refrigerators, ice cream cabinets, ice cream makers, drinking fountains, and a large variety of other refrigerated equipment.

The store's commercial refrigeration department is in a separate room, behind the domestic appliance department, but directly connecting with the huge service department which gives 24-hour-a-day service on all commercial refrigeration equipment sold, as well as rebuilding and refinishing trade-in boxes right out in the open where the customer may watch if he so desires.

Whenever a commercial refrigeration prospect comes into the store, it is not necessary for him to ask questions, or even to have a salesman accompany him, inasmuch as complete information on each piece of commercial equipment is supplied by stencilled signs like those shown in the accompanying photograph. Such references as "Life-time porcelain"—"A gleaming white all its life"—"$175 delivers"—"Heat-exchanger equipped" —etc., answer most of the questions which the prospect is likely to ask.

A convenient stencil-cutting machine is kept in one corner of the room, and is used to make up the "selling signs." Water-soluble ink (which may be easily rubbed off the refrigerator surface with a wet cloth) and a brush is all that is necessary to apply the information directly on the face of the box itself.

Wallace-Johnston Co. makes selling signs of this type for almost everything carried in the department, with such signs as "Delivers 3 gallons of refreshingly cold water per hour" brushed onto drinking fountains, and "A real profit maker" applied to ice cream manufacturing equipment.

ther stimulate the company's sales of commercial refrigeration equipment. At the present time this phase of the firm's acivities constitutes about 40% of its overall business.

"We have doubled our commercial equipment sales volume in the past year," declares Sampson, "but we haven't even dented the surface of the existing market—particularly insofar as air conditioning equipment is concerned. Because of the extreme temperature and humidity conditions encountered here," he points out, "comfort cooling is a terrific attraction. Consequently we count every Corpus Christi businessman and homeowner as a prospective customer for this type of equipment."

In girding for an all-out sales campaign among commercial buyers, the company is counting heavily on Sampson's experience and selling savvy. His refrigeration and air conditioning career dates back to 1929, when he repaired refrigerators in Tyler, Tex. Later he jumped from service into selling.

Teamed with Sampson is E. L. Orear, another commercial sales specialist, and J. R. Renfro, a draftsman-engineer. The latter has set the stage for many a commercial sale by meticulously blue printing complete, detailed plans for air conditioning and refrigeration systems.

Key man in any campaign to sell commercial equipment, believes Sampson, is the engineer. In his opinion, if your commercial sales prospects haven't confidence in the man who conducts the preliminary research into their cooling problems, you're just wasting time in trying to make a sale.

"Each commercial job is a completely coordinated proposition," says Sampson. "Our sales, engineering, and service personnel form a smooth functioning organization that is aimed at giving the customer the utmost in results for his money."

New building lists, personal contacts, membership in A.G.C., and a mailing list comprised of names of 600 business firms are factors in the company's quest for commercial sales leads.

A single mailing of 300 return postal cards, each containing a list of equipment with space for checking items in which the recipient was interested, netted 25 prospects.

In building sales among commer-

Continued on page 64

HOW TO MAINTAIN AND REPAIR

Gate and Globe Valves

By R. A. Hendrickson

Manager, Oil Sales
Crane Co.

Part 2

IF a valve cannot be shut off tightly, the cause of the trouble should be investigated without delay. If a leak is neglected, the seating surfaces may be soon damaged to the extent that replacement of parts or of the complete valve may be necessary.

When a leaky gate valve is discovered, remove the bonnet and examine the disc and body thoroughly to determine the extent of damage to body rings and disc. (Step 1) If corrosion has caused excessive pitting or eating away of metal as in the case of guide ribs in the body, it may be impractical to attempt repairs. A complete check-up and servicing of all parts of the valve is recommended.

Remove the stem from the bonnet and examine it for scoring and pitting where the packing contacts the stem. Light polishing with fine emery cloth is all that may be needed to put the stem in good condition. (Step 2)

Remove all packing and thoroughly clean the stuffing box. (Step 3) At the same time clean the inside of the valve bonnet and other parts to remove all dirt, scale, corrosion, etc., so that the interior of the valve will be free of all foreign particles. If the valve has a flat gasket, it should be removed completely and replaced with one of proper material and size. (Step 4)

If a ring type joint is used, the oval or octagonal metal ring can be cleaned, and, if not pitted, can be used again. If, after the cleaning and examining of all parts has been completed, it is found possible to repair the valve by refinishing disc and body seat rings, or by replacement of body seat rings, proceed as follows:

Place the disc in a vise with seat face up. (Step 5) Wrap a

Continued on page 65

STEP 1 Remove bonnet and examine disc and body thoroughly to determine damage.



STEP 2 Light polishing of stem with fine emery cloth is all that may be needed.



STEP 3 Remove all packing and thoroughly clean the stuffing box.



STEP 4 Remove flat gasket completely and replace with one of proper size.



STEP 5 Place disc in vise with seat face up and lap entire bearing surface.



STEP 6 Remove cuts on body seat rings by lapping with small emery block.



THE HEAT PUMP and its possibilities

HERE is a frank and informed appraisal of that much-talked-of mechanical marvel—the Heat Pump. If you want to know what the heat pump is, how it operates, and what it can do, this article is highly recommended; if you're curious to learn its limitations and what it can't do, this article is a must. In this article the author offers you the benefit of his many years of design and operating experience with various types of heat pump systems.

By E. R. Ambrose
Air Conditioning Engineer
American Gas & Electric Service Corp.

PART 1

FIG 1: This schematic diagram of a basic heat pump cycle shows how usable heat is obtained from an outside source which is at a lower temperature level.

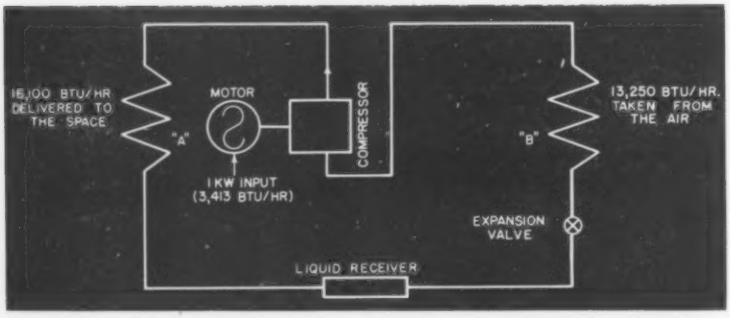
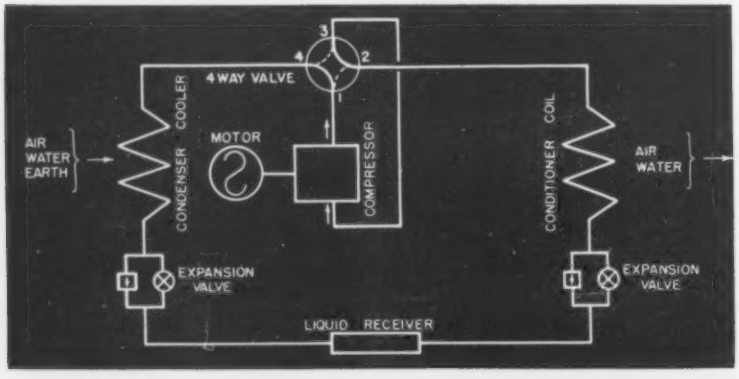


FIG 2: "Reverse cycle" heat pump for heating and cooling, using air, water, or earth as the heat source, can be effected by changing refrigerant flow.



THE heat pump has been showered with an amazing amount of publicity during the past several years.

It has been featured before the leading engineering societies, in numerous newspaper articles, and in many technical and non-technical publications throughout the civilized world. Unquestionably this subject has captured the interest and imagination of engineers, architects, manufacturers, contractors, electric utilities, and the general public.

This publicity and interest is easily understandable when the heat pump is compared with the more conventional heating and cooling systems.

For instance, the heat pump can heat and cool with the same equipment; it can humidify, dehumidify, and filter the air. It only requires one utility service—electricity; no products of combustion are involved, no open flame, no soot, no dirt, no odors, and no chimney. The heat pump can be located practically anywhere in the structure to supply instantaneous automatic year-round heating and cooling.

Blessed with so many outstanding, desirable, and almost unbelievable features, no one will deny that every effort should be made to encourage

the research and development of this device.

On the other hand, a frank and accurate appraisal should be made to make certain that the enthusiastic claims made for the heat pump are not so far ahead of the engineering progress as to cause a disastrous setback to the entire industry.

After all, the heat pump cycle has been known for something like 95 years. Therefore, it is necessary to know what are the important engineering and technical advances which have been made to make the heat pump a reality today, and why there has been a hesitancy on the part of the engineers and manufacturers during these many years past.

To properly answer these questions and to be better able to evaluate the future possibilities of the heat pump in the industrial, commercial, and residential fields, it is advantageous to have a basic concept of what the heat pump is and how it works.

Heat Pump Cycle

Figure 1 shows a basic heat pump cycle consisting of a compressor, heat transfer surfaces "A" and "B," a liquid receiver and an expansion valve.

The compressor or pump delivers the high-pressure, high-temperature refrigerant gas to the condensing surface "A" where it is liquefied, giving up its latent heat to the air passing over this surface.

From surface "A" the liquid refrigerant goes through the expansion valve to the evaporator surface "B" where it is gasified, absorbing the necessary latent heat from the surrounding ambient.

From surface "B" the low-pressure, low-temperature gas returns to the compressor to repeat the cycle.

This is not a new or revolutionary cycle. It has been extensively used in the domestic mechanical refrigerator for many years to maintain a low temperature within a space for the preservation of food.

In the domestic mechanical refrigerator, however, the primary object is the refrigerating effect produced by the low temperature evaporator surface, while in the heat pump for comfort heating and cooling the heat rejected by the condenser is of equal importance.

There are several methods of fur-

Continued on page 62

FIG 3: Industrial applications of the heat pump include this arrangement for use in processes involving the concentration or distillation of solutions.

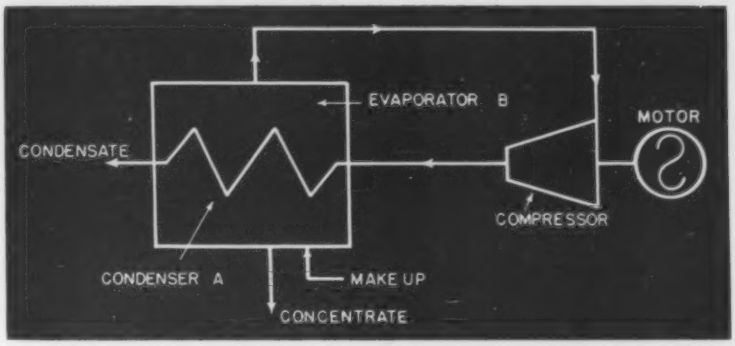


FIG 4: This diagram illustrates one possible equipment arrangement for a heat pump water heater for either residential or commercial applications.

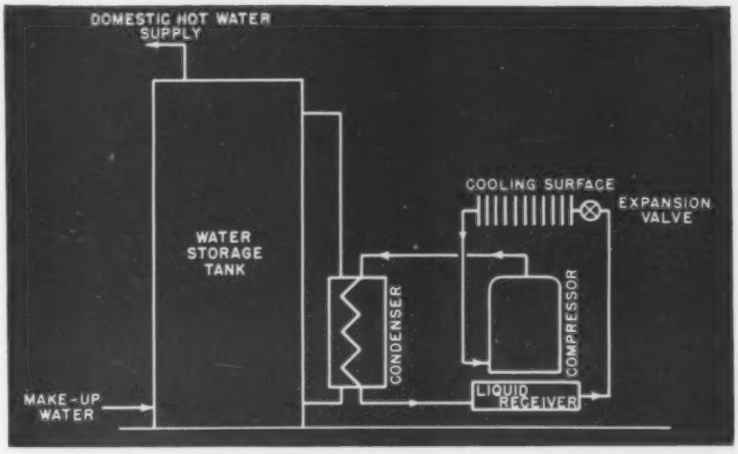
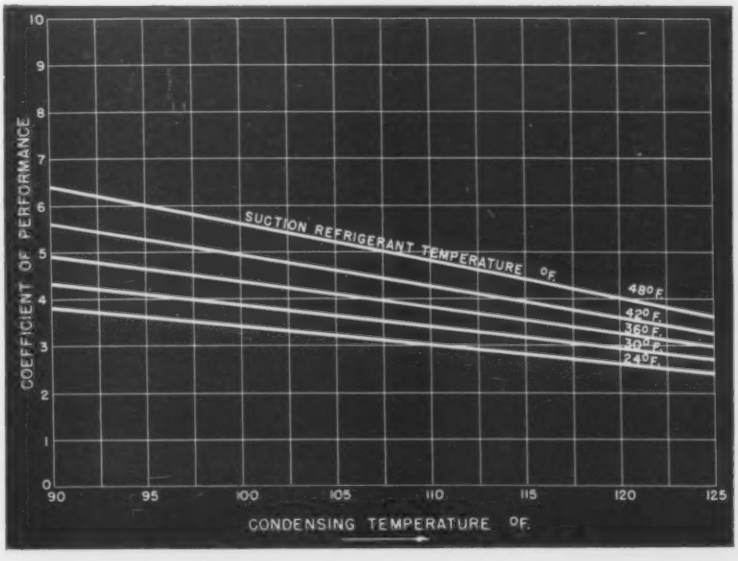


FIG 5: Relation between suction temperature, head pressure, and coefficient of perfomance of conventional F-12 compressor-motor combination is shown.



ABOUT People

Edward R. Legg, one time assistant general sales manager of Nash-Kelvinator Sales Corp. and more recently vice president in charge of sales for Jack & Heintz Precision Industries Inc., has been elected president of Refrigeration Corp. of America, a subsidiary of Noma Electric Corp. In his new capacity, Legg also becomes general manager of Noma's Refrigera- and Stangard-Dickerson Divisions, manufacturing organizations for which Refrigeration Corp. of America serves as sales agency. **Walter Raskin,** for many years works manager of Stangard-Dickerson, also has been placed in charge of manufacturing operations at the Refrigeration Division plant.



E. R. Legg

●

Edmund G. Robinson, general manager of the organic chemicals department of E. I. du Pont de Nemours & Co. since 1929, has retired. He has been succeeded by **John F. Daley,** general manager of du Pont's pigment department. Robinson will continue as a member of the board of directors.

●

Franklin Wedge, former eastern manager for Ansul Chemical Co., has been appointed assistant to the president. He has moved from Philadelphia to the company's main office at Marinette, Wis. With this assignment Wedge climaxes an 18-year career with Ansul. He is a member of the American Society of Refrigerating Engineers as well as the American Chemical Society. During World War II, he served as a temporary member of the Coast Guard Reserve.



●

Appointment of **B. H. Cox,** former sales promotion manager of Frigidaire's St. Louis branch, to advertising and sales promotion manager of the Chicago branch of Frigidaire Sales Corp. has been announced. Cox is a veteran of nearly 20 years experience in the appliance sales field. He became associated with Frigidaire in 1946.

●

F. E. Lehman, manager of the sales & service department of Aeroproducts Div., General Motors Corp., has been named assistant commercial sales manager of Frigidaire Div. Lehman succeeds **A. C. Freimann,** who has been appointed general sales manager of Delco Appliance Div. A veteran of more than 16 years in the sales and service fields, Lehman first became associated with Frigidaire in 1931.



F. E. Lehman

●

A. M. Kuehmsted has been appointed head of the cooling tower division of Santa Fe Tank & Tower Co. Kuehmsted, who has been with the company for 12 years, last year opened the firm's New York office.

●

H. Gordon Smith has been appointed assistant district manager of General Electric appliance sales in the Pacific district. Smith has moved to San Francisco from Jacksonville, Fla., where he had served as local manager of appliance sales since joining the company three years ago.

W. R. Gunberg has been named zone manager of the new Seattle, Wash. factory branch of Kelvinator Div., Nash-Kelvinator Corp. He has been succeeded as manager of the division's Newark, N. J. branch by **Bruce Beveridge,** formerly branch manager at Baltimore. **C. S. Raugh,** district manager at Cleveland, has been named to replace Beveridge at Baltimore. Gunberg has been in the appliance field since 1925, having operated his own dealership for several years. Beveridge joined Kelvinator in 1937 as retail salesman in the Detroit zone. He had been in Baltimore since 1944. Raugh joined Kelvinator in 1939 as Pittsburgh zone representative, transferring to Cleveland when he returned from service with the U. S. Signal Corps.



W. R. Gunberg



B. Beveridge



C. S. Raugh

●

Edward J. Gesick has been elected treasurer of Mills Industries, Inc. Gesick formerly was assistant secretary and assistant treasurer of Popular Mechanics Co.

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Harold T. Anderson has been appointed assistant to the general sales manager of Worthington Pump & Machinery Corp. and has been placed in charge of sales production relations. In this capacity he is responsible for receiving and interviewing representatives of cus-



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COMMERCIAL Refrigerator SALES NEWS

While *The Refrigeration Industry* is *not* the official publication of the National Commercial Refrigerator Sales Assn., the Editors assign this space each month to the association. The information below is furnished, for the most part, by the offices of the association and its local affiliates.

Joint Meeting Highlights Trade Association Policies

Position of the National Commercial Refrigerator Sales Association in respect to the commercial refrigeration industry and its manufacturers was clearly outlined by W. C. Bader, Association president, at the initial joint meeting between NCRSA and the Commercial Refrigerator Manufacturers Association.

Pointing out that there are three parties—the manufacturer, the distributor, and the public—whose interests must be considered, Bader declared that the objectives of the joint cooperation between the two industry groups should include the following:

1. Better relations should be promoted between all interested parties.
2. An attitude of good will should be promoted by the manufacturers and should be relayed through the entire distributing organization through the medium of NCRSA.
3. Manufacturers should exercise patience in judging local conditions and assist NCRSA in trying to educate local distributors along ethical lines.
4. If a local group departs from the proper policy, the manufacturers should urge their representatives in the group not to resign in a spirit of criticism but, rather, to remain as members of the group and attempt to correct the difficulty.
5. It should be recognized that some manufacturers have a distribution setup that does not enable them to help their outlets directly. NCRSA is in a position to assume this function and do this job for them. Manufacturers in this position should realize that this availability of proper guidance in sound business methods minimizes the costly turnover of dealers, thus paying them heavy dividends.

As a means of exposing to the manufacturers the actual conditions in the field as they relate to ethical or unethical selling practices among distributors, Bader also volunteered to conduct a survey through NCRSA to obtain the facts and present them to CRMA as soon as the work can be completed.

It is understood that this report would be coupled with recommendations to be made by NCRSA, in the light of its own experience, for manufacturers generally, and in particular for those who are especially affected by any undesirable practices that may be disclosed by the survey.

KIRBY & SAWYER NAMED TO HANDLE GLOEKLER

B. W. Kirby and B. L. Sawyer have been named as factory sales representatives by Gloekler Refrigerator Co., commercial refrigerator manufacturer of Erie, Pa. These new representatives will cover the three states of North Carolina, South Carolina, and Georgia.

FOOD FREEZING FAIR STIRS USER INTEREST

The Food Freezing Fair held in conjunction with the Hawkeye Holidays celebration at Des Moines, Iowa turned out to be a rallying point for home and farm, freezer manufacturers, distributors, dealers, and others in awakening the untapped consumer interest in food freezers in that state, according to Paul Groom, head of Groom Distributing Co., Des Moines, distributors for Wilson Refrigeration, Inc.

The cooperative Fair project, with nearly 8,000 visitors from all sections

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FROZEN FOODS ALLEVIATE EUROPE'S FOOD SHORTAGE



A long step toward the alleviation of western Europe's critical food shortage is the development in that area of frozen food business as evidenced by this installation of a frozen food display cabinet in Belgium's largest department store, the "Au Bon Marche". The case is a Jordon M24 frozen food merchandiser; its admirer is Fred Folland, vice president of Paneuropa Corp., leading European distributor of Jordon frozen food equipment. Working with a leading Belgian manufacturer the Paneuropa organization has established frozen food sales centers throughout Belgium, the Netherlands, and Luxembourg.

Notes on the Efficiency of Drying Agents

ONE of the most troublesome problems encountered in the field of refrigeration contracting is that of moisture in the refrigeration system, or other difficulties which are diagnosed as moisture.

This problem has been the subject of a great deal of discussion, both oral and written, but most of this discussion has been largely of a theoretical nature. The value of this article lies in the fact that it deals with the moisture problem from a practical standpoint, just as it is encountered by the man in the field.

It is our sincere hope that the publication of this article, dealing as it does with such a highly controversial subject, will result in the submission to us of similar articles on other phases of the moisture problem. This will enable us to pass on to our readers the most complete information available, both pro and con, on the subject of moisture in the refrigeration system.

—The Editors

By S. H. Crampton

Highside Chemical Co.

THERE has been a great deal of discussion pro and con recently about the relative efficiency of various drying agents, how they should be used in refrigeration systems, and how dry it is possible to get the refrigerant by employing these driers in various ways.

The purpose of this article is to point out various places where the practical aspects of the moisture problem have been largely overlooked in the theoretical discussions which have appeared.

Theoretical discussions are always of value in outlining the broad scope of a problem. However, in the case of moisture in refrigerating systems, purely theoretical considerations need interpretation so that the practical refrigeration man can use the information intelligently.

For example, the drying problem is not unique to the refrigeration industry. There are many other fields of chemistry in which drying problems are equally important and in which it is equally difficult to get a satisfactory degree of dryness. However, in these other fields methods are employed which are more thorough than those used in refrigeration.

In chemistry it is generally possible to use clean equipment (glass or stainless steel) and cleanliness is assured by frequent flushing out and cleaning out with various solvents and mixtures before a piece of equipment is used.

It would probably be useful in refrigeration to consider employing more of this type of cleaning. In this respect the drying of a system with a stream of dry air, prior to putting it in operation, is probably one of the most practical flushing methods that can be used.

Moisture in a refrigeration system is frequently not uniformly distributed. It may exist as particles of water or drops scattered around in various places, and circulation of the refrigerant is by no means a sure way of circulating all the water which may be present.

Theory vs. Practice

No theoretical data about the relative drying efficiency of any material or drying procedure can be applied to an actual system unless the conditions are exactly the same as those in the test. Unfortunately this is seldom the case.

The best drying agent in the world will not remove water from the circulating refrigerant if the water remains frozen somewhere in the evaporator, or clings—temporarily, at least—to some surface in the compressor body.

The inside of a refrigeration system by no means contains pure refrigerant and nothing else.

For example, at all times there is oil present. Oil is a very complex mixture and in this day and age is becoming more complex due to the tendency of oil manufacturers to experiment with various types of additives and inhibitors.

Some of these materials are related to oils and some are materials whose chemical properties are totally unrelated to the usual chemicals found in oil.

There is also likely to be a little moisture present. This can exist either as liquid moisture or as vapor, or as moisture adsorbed on the sides or walls of the equipment and tubing.

Air is also likely to be present. The oxygen of the air is the most important and troublesome component. Iron oxides and copper oxides present on the metal surfaces are catalytic agents which tend to promote chemical reaction. They also act as absorbents, holding water.

After a system is installed, refrigerant, oil, air, and moisture circulate

together. They are constantly mixed and are repeatedly heated and cooled from low temperatures to high temperatures and back again. They are brought continuously in contact with metals and oxides in the system. As a result, reactions take place and various new products are formed.

These are chiefly reaction products of the oil, and consist of peroxides, organic acids and similar materials which are not bland like the oil or refrigerant but which are definitely corrosive. In addition, some materials formed are very likely to prove to be excellent chemical raw materials for the formation of resins.

It can be pointed out that one of the best explanations of how wax mysteriously appears in an oil which initially was thought to be wax free, is the chemical formation of resins. A study of the literature of lubricating oils for automotive engines and for electrical transformers will show what a tremendous amount of these unwanted lacquer type and resin type materials can be formed in engines and transformers from originally clean oils.

At this point some numbers are in order.

Some Notes on Numbers

There has been much discussion appearing about systems being dried to moisture contents under 25 or under 10 parts per million. This is an impressive degree of dryness, but to understand what it means practically is another matter.

In other words, 10 parts per million of moisture is not very much in a refrigerating system and even two, three or four times this amount is not necessarily likely to cause any trouble.

Take a 1-hp system containing 8 pounds of refrigerant. Ten parts per million of moisture in this system is .036 grams. This is a little cube of water about $\frac{1}{8}''$ on a side. (You will recall that there are about 454 grams in one pound.)

You are familiar with the way water sticks to various surfaces. For example, it does not easily run off a windshield.

In a 1-hp system there are perhaps 30 sq. ft. of surface, 24 in the evaporator, 2 in the receiver, 1 in the compressor and perhaps 3 in the connecting lines. Ten parts per million of water in this system means that there

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Camouflage Your Coolers

A PACKAGED air conditioning unit doesn't have to be an eyesore, regardless of its surroundings. Nor does it have to be buried in the basement or in a back room to keep it out of sight.

In fact, with just a little extra attention and very little added cost it is possible to blend room coolers or store coolers right into their surroundings so effectively that they actually become an integral part of the decor of the room in which they are installed.

Specializing in this form of decorative concealment, the organization of Smith & Lowman, Inc., Chrysler Airtemp outlet in Cincinnati, prides itself on its ability to attractively incorporate packaged air conditioners into virtually any decorative scheme.

Illustrative of this technique is the installation made by Smith & Lowman in the Roselawn Tavern on Reading Road in suburban Cincinnati. These photos of the dining room and the bar of this plushy establishment show how much a part of the general decorative scheme room coolers can become.

Note that in the dining room the air conditioning unit has been built right into the wall at the left side of the recessed mural in such a way as to almost exactly balance off the service cupboard at the right. In order to get even distribution of cool air throughout the room the outlet grilles were located at the top of this picture wall, above the unit and the mural, and connected by means of short ducts to the unit itself.

This technique was not necessary in the bar room, for here the unit was finished off in such a way that the lower portion of it blended in perfectly with the room's wainscoting, while the upper part of the unit was painted to match the rest of the wall.



CONTRACTORS
News • Activities • Plans

While *The Refrigeration Industry* is *not* the official publication of the National Association of Refrigeration Contractors, the Editors assign this space each month to the association. The information below is furnished, for the most part, by the offices of the association and its local affiliates.

Operating Ordinance Loses In Central California City

A proposed city ordinance which would have required the maintenance of 24-hour service by operating engineers for any stationary refrigerating machine of more than 25 tons refrigerating capacity has been voted down by the city council of San Jose, Calif.

This ordinance, proposed by the operating engineers, was described by Z. E. Jones, executive vice president of the Refrigeration Contractors Association of Northern California, as an attempt to "featherbed" the refrigeration industry in Central California. Jones, acting for his association's board of directors and for its codes and ordinances committee, appeared as the group's spokesman in opposition to the proposal.

The city council met as a committee of the whole to hear both sides of the matter. Not only did the committee vote against recommending passage of this particular ordinance, but it also went on record by resolution as being defintely opposed to such legislation, in view of the fact that no evidence showing need or justification for the ordinance was submitted.

Jones pointed out that a very similar ordinance was proposed in San Francisco several months ago, but was successfully opposed for the same reasons.

"Our defensive fight against such legislation," Jones declared, "is not alone for contractors but also for our customers, particularly users of refrigeration and air conditioning systems of medium size and larger, who would be required to maintain 24-hour operating engineer service. This would amount to no more than a watchman service, for which there is neither need or justification."

Under provisions of the ordinance, operation of refrigeration of more than 25 tons capacity would have been put under the control of a city board of engineer examiners of five members, each of whom "shall have had at least five years of practical experience as a steam engineer, holding a first-class certificate as such."

The proposal lumped "stationary refrigerating machines" in with steam boilers and engines and Diesel or semi-Diesel engines.

Provisions affecting the refrigeration industry included:

1. Requirement of a "first grade" license for any person to "use or operate . . . any stationary refrigerating machine, irrespective of motive power, of more than 25 tons refrigerating capacity."

2. Requirement that a licensed engineer must always be in charge of such equipment. "Whenever such machinery, equipment, or apparatus is used continuously throughout the 24-hour period, at least two licensed engineers must be employed, who may stand watch alternately."

JOINT MEETINGS PLANNED BY FIVE LOS ANGELES COOLING GROUPS

Two representatives each of five refrigeration and air conditioning technical societies and trade associations met recently in Los Angeles, Calif., to develop programs for their meetings during the coming winter season and agreed that it would be advantageous to hold some of their meetings together. The initial get-together was sponsored by Robert N. Gay, president of the local Refrigeration Contractors Association, after it had been suggested by Ralph M. Westcott, who is a director and secretary-treasurer of the contractors groups as well as Los Angeles section chairman of the American Society of Refrigerating Engineers.

In addition to the contractors organization, represented by Gay and Neal S. Templin, executive secretary, others taking part in the conference were Westcott and George S. Wheaton on behalf of the A.S.R.E., Richard Farr and John Blake representing the American Society of Heating and Ventilating Engineers, Regis Gubser and D. H. Byl for the National Association of Practical Refrigerating En-

CHATTANOOGA CONTRACTORS JOIN NATIONAL GROUP



Twenty-sixth local association to affiliate with the National Association of Refrigeration Contractors is the Refrigeration Contractors Association of Chattanooga, Tenn., which poses here for its organizational picture. Seated at the table are (in the usual order): J. B. Corlew, Corlew Engineering Co., secretary-treasurer; Walter Young, Jr., Walter Young, Jr. Co., vice president; B. C. McCall, General Equipment Co., Inc., president; Abe Prebul, Prebul Refrigeration Co., sergeant-at-arms. Standing are: Horace Evans, Chattanooga Refrigeration & Air Conditioning, Inc.; C. C. Campbell, Chattanooga Scale & Fixture Co.; Arthur Jones, J. W. Brooks & Son; Bob Batson, Lemmer-Horrell; Clair Smith, Southern Blow Pipe & Roofing Co.; Ed Lawson, Lawson Refrigeration Service.

gineers, and Paul Kieffer and Harold Halls of the Refrigeration Service Engineers Society.

It was pointed out that there are a considerable number of men who are active members in two or more of the groups and in addition to this overlapping membership, similar subjects have often been program topics at meetings of several of the groups. It is hoped that by cooperative effort the work of all can be coordinated and much duplication avoided.

It is proposed to hold only one joint meeting of all five groups during the coming season, with an outstanding national figure as the guest speaker. In addition, when the topic programmed by any one group would be of particular interest to one or more of the others a joint meeting would be held.

It is the expectation that this plan will result not only in better and more interesting meetings with increased attendance, but also will assist materially in bringing all parts of the industry closer together, making for better relations and improved conditions within the industry.

NARC ANNUAL MEETING SET FOR NOV. 18-19

Next annual meeting of the National Association of Refrigeration Contractors will be held Nov. 18 and 19 at the Hotel Sherman, Chicago, Ill.

The Refrigeration Contractors Association of Chicago will act as host during this meeting. Al Weil has been named program chairman, and already is hard at work lining up a program which will stress those subjects indicated on the questionnaires returned by members.

CANTON CONTRACTORS INITIATE LOCAL GROUP

A group of refrigeration contractors held a meeting recently in Canton, Ohio for the purpose of forming a local association in that area which eventually will affiliate with NARC.

Emil Flanik, national chairman of NARC's guarantee committee, and Joe Helminak, executive vice president of NARC, addressed the group.

Leonard Petry was elected as temporary chairman pending the next meeting of the group.



Modified radiant heating, with fuel oil coursing through wrought iron pipes, was installed in the floor of this food plant freezing room to keep frost from forming beneath the insulated floor. The supply main running parallel to the wall at the right feeds the smaller pipes which are imbedded in the structural slab under the freezing room floor. Visible in the background are the heat exchanger in which the oil is warmed, the circulator, and various controls.

Radiant Heat for Cooler Floors

RADIANT heating may seem a far cry from low temperature refrigeration, but actually the two go hand in hand in some freezing room and refrigerated storage room installations designed by V. C. Patterson & Associates, mechanical engineers, and Buchart Engineering Corp., architects and engineers, of York, Pa.

The reason for the cooling, of course, is obvious. But in case you're still wondering, the radiant heating is employed to keep the concrete floors in these refrigerated rooms from buckling, and the insulation from deteriorating.

Typical of such modified radiant heating installations is one installed in the Aspers, Pa. plant of Adams Apple Products Corp. by C. C. Kottcamp & Son, of York.

The main freezing room in the Adams plant, used primarily for freezing apples, strawberries, and other fruit, is about 10 feet wide and 75 feet long. To provide the low temperatures required, a two-stage ammonia refrigerating system is employed. The structural floor slab, the layer of floor insulation, and the finish floor slab each is about 6 inches thick.

To prevent the accumulation of frost beneath the structural slab, and the consequent buckling of the freezing room floor, ¾-inch wrought iron pipe coils were buried in the structural slab during the early stages of construction. These pipes are in the form of a grid and are spaced on 36-inch centers.

Instead of using water protected by anti-freeze compounds, the designers selected No. 2 fuel oil as the heating medium that is circulated through the coils. The oil is heated to about 40 F in a small heat exchanger connected to the plant's steam lines.

The designers estimate that the heat output of this system is sufficient to prevent freezing of the insulation even when temperature within the room is reduced to –30 F. In fact this same system has been employed in the plant's freezing storage room, where temperatures range from 0 to –5 F, and in a freezing tunnel holding temperatures as low as –30 F. In no case, however, does the radiant heat penetrate the finish floor slab.

GETTING DO



Bob Webber stands admiringly by the heat pump unit which he designed and built, and which for the past two years has been satisfying the year-around heating and cooling requirements of his own home.

THE REFRIGERATION INDUSTRY'S MAN OF THE MONTH

BOB WEBBER did a great deal of traveling during his early days in the refrigeration business, before he finally settled down in Indianapolis, Ind., but in the past few years Bob's name has traveled a lot farther than he himself ever dreamed of doing.

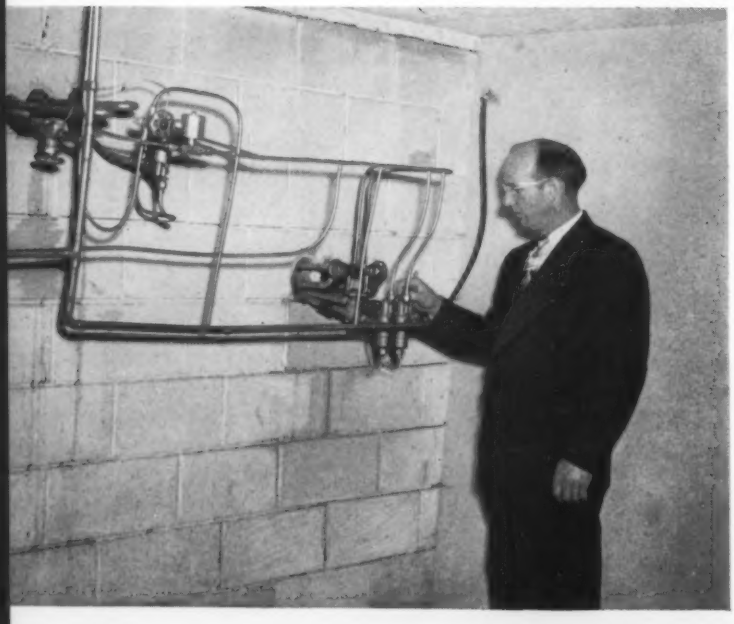
And all because his name has become prominently associated with the development of the heat pump, that much publicized system of year around air conditioning which seems to have taken the imagination of the world by storm.

Today it is a common occurrence for Bob to receive mail from literally the four corners of the earth addressed simply to Robert C. Webber, Indianapolis, Ind. And the postman never has any trouble finding the right house.

But the heat pump, for which Bob Webber is best known, came into his life at a late period, relatively speaking. Bob is still in his thirties, but before he began toying with the theory of reverse cycle refrigeration, as it is sometimes called, he had spent a good many years of practical tool-in-hand work in the refrigeration and air conditioning field, thus acquiring a solid background of cooling fundamentals.

Bob's first contact with the refrigeration game came when, as a kid in his teens, he took a job as truck driver with the Carolina Refrigeration Co. in his home town of Charlotte, N. C. Always handy with his hands, and possessing somewhat more than his share of the average American boy's mechanical aptitude, it was a natural step for him to work from this job into a position as an assistant in the company's service department.

It was during this period that he first learned the welding trade and also that he developed a "Zig Zag"



Bob examines the valving arrangement at the end of the 400-foot coil of ¾-inch copper tubing which lies buried in his back yard and which serves as the heat source for his heat pump's winter cycle.

This is the pleasant seven-room suburban residence which Bob and his family call home. It is here that he built and installed his heat pump "baby", and it was in this garage that he began the manufacture of the Webber home freezer.

'N TO EARTH

"Getting down to earth" for most people means the end of their dreams; for Bob Webber it has meant just the beginning of his. Bob's heat pump, which uses the earth as its heat source, has gained him international attention, but he still finds time to manufacture his own brand of home freezers, sell appliances, and run a thriving service business

water cooler which was patented in his boss's name. All of this experience was to stand him in good stead later on.

He stuck at this job for about two years, until the firm for which he was working folded up. Then, faced with the necessity of finding another job, he decided to give free rein to his yen for travel.

Teaming up with a youthful traveling companion, Bob headed for the West Coast, which even then was being highly touted as the land of golden opportunity.

After beating their way across a good share of the country, the pair paused briefly in Dallas, Tex. There Bob landed a job with the local branch of Baker Ice Machine Co. as a $1-an-hour service and erection engineer by passing himself off as a fully trained service man. He then proceeded to turn out a quality of work which amply backed up his claims.

Just two weeks later, however, his traveling companion decided to go on to California, so Bob quit his new job and went along.

In Hollywood Bob again quickly found employment, this time as a 50c-an-hour service mechanic for a Frick contractor who was installing cooling equipment for air conditioning and film processing in the movie industry's first color studio. This job was completed in about six weeks, and Bob again found himself unemployed.

Remembering his recent experience with Baker in Dallas, Bob sought employment at the company's Los Angeles branch. But the employment picture was not so bright here, and he literally had to beg for a job before the branch finally signed him on as a regular serviceman and erection engineer at a starting wage of $25 per week—50c an hour for 50 hours.

It was while working here that Bob discovered that California, at that time, was about 10 years ahead of the East in refrigeration progress. "They really turned out some beautiful jobs out there in those days," he recalls, "most of them of all welded construction."

Bob learned fast, and although he was only 19 at the time he soon was charged with responsibility of installing the mechanical cooling system on one of the first and largest refrigerated fishing boats, the "Reliance". Despite his youth he had 11 men working under him.

At the completion of this job he accompanied the vessel on its 5-week maiden voyage in order to check the

This remodeled residence on the outskirts of Indianapolis houses Bob's refrigeration and appliance business today. The building under construction at the rear is a fabricating assembly plant for his home freezers.







Inez Webber, Bob's wife, examines some ears of sweet corn as she removes them from one of the family's four home freezers.



Nine-year-old Constance May skips rope on the front lawn, while Robert F., 11, sharpens up at one of his favorite sports.



operation of the refrigeration system. The system proved entirely satisfactory, for even in the Galapagos Islands, where the temperature of condenser water was around 110 F, the equipment held 122 tons of fish at —10 F.

So satisfied was the company with the job Bob had done that when he returned from this trial voyage his pay was tripled.

Another big job which he handled at this time was the installation of a refrigeration system in a $35,000 warehouse for the Union Pacific railroad. This ammonia system was designed to maintain seven different temperatures on a single unit. Bob and his crew built most of the equipment up right on the job.

On the Road Again

At the completion of this warehouse job in 1932 Bob again got the urge for a change of scenery. He left Baker's L.A. branch with the intention of returning to North Carolina, but in Fort Worth, Texas he again met up with his old traveling companion, and so the pair settled down for what was to prove a brief stay.

Bob quickly had some business cards printed and promptly set out to establish himself as an independent service and installation contractor. He found that even in those depression days there was always some refrigeration service work available for the man who was alert enough to grasp the opportunity.

The thing which really got him started in this Texas venture was a job he did for a local hotel. During a routine solicitation of the hotel's service work, Bob learned that the hotel's cooling system was operating with a head pressure of 275 pounds, whereas the maximum allowed under the city code was 225 pounds.

$1600 vs. $50

Promptly he hunted up the manager and found that one firm had recommended installation of a cooling tower at a cost of $1600 as the only solution for this problem. Bob quickly looked over the system, which was comprised of two ammonia machines equipped wtih an inside cooling tower, and then guaranteed to lower the head pressure to 175 pounds for less than $50.

When the manager snapped him up on this offer, Bob arranged to shut down the system for one day, obtained one man to help him, and proceeded to clean the condensers, tie them in series, and reverse the fan on the cooling tower so that it pulled air from the outside and discharged it into the hotel's laundry.

At 8 o'clock that night the head pressure was down to 160 pounds. Bob charged the hotel manager a fee of $32, and the manager was so astounded that he added a $10 tip. As an additional bonus, he gave Bob a resounding letter of recommendation which helped him a great deal in obtaining other work.

It wasn't long before Bob's restlessness again asserted itself, however, and with his same companion he struck out for Chicago. Here things were really tough, for the unions had a tight hold on the labor situation and Bob didn't carry a union card. So after two weeks of fruitless searching he took off once again and this time landed in Indianapolis on Memorial Day, 1932.

Destiny's Spot

Little did he realize it at the time, but here was where he was destined to really make his mark.

At first he contented himself, as before, with picking up odd jobs of refrigeration repair work. Then one night he stumbled on what he thought was a good deal. Stopping in at a frozen custard stand he got to thinking as he watched them laboriously turn out their product by means of the old ice and salt system.

He looked up the maker of this equipment, a local man by the name of Frank Thomas, and told him that he could build an electrically operated freezer to do the job. Thomas said that a number of leading manufacturers of refrigeration equipment had turned him down when he suggested such a possibility.

Undaunted by this, Bob went ahead and built the electric freezing unit for Thomas. He obtained a 3-hp Servel unit, rounded up some 200 feet of 5/8-inch tubing which he wrapped around the ice cream cylinders, equipped the system with an expansion valve and provided it with 3 inches of hair felt insulation.

He built this entire unit in three weeks at a salary of $35 per week. The job not only worked, but it turned out 16 gallons of frozen custard per

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REFRIGERATION INDUSTRY *News*

"RECOLD" PATENTS ON WATER DEFROST UPHELD IN APPEAL

Culminating a long suit brought by York Corp. to have the patent on the "Water Defrost" method of refrigeration declared invalid, the U. S. Circuit Court of Appeals for the Ninth District recently handed down a decision in favor of Refrigeration Engineering, Inc. of Los Angeles, Calif., holder of the patent covering Water Defrost coils.

The decision of the appellate court climaxes several years of litigation and modifies the decision of the lower court which held that only one of the claims made by Refrigeration Engineering, Inc. were valid. In its decision, the Circuit Court of Appeals not only upheld the decision of the U. S. District court, but reversed the ruling of this court and ruled that two additional claims, not allowed by the lower court, were valid.

York Corp., which has been manufacturing water defrost coils for many years, brought action in the U. S. District Court to disprove claims made by Refrigeration Engineering, Inc. with regard to the patent covering "Recold" water defrost coils and the method of using ordinary tap water to defrost coils. In the action they asked for a judgment declaring the patent to be invalid.

During the many years which "Recold" Water Defrost Coils have been in production, several leading manufacturers have realized the importance of this development and have made arrangements with Refrigeration Engineering, Inc. to manufacture Water Defrost Coils under a license agreement. Today more than eight well-known manufacturing concerns are operating under such an agreement.

The original trial of this case was held during the latter part of 1946 before the U. S. District Court. The decision of this court found that Claim No. 13 was valid, and held that York Corp. had infringed the patent. Other claims made by Refrigeration Engineering, Inc. were held to be invalid.

MAYER MFG. MOVES TO LARGER PLANT

Mayer Mfg. Co., manufacturer of soda fountains, with plant formerly located at 4212 West Irving Park Road and sales offices at 20 West Jackson Blvd., Chicago, has moved to its new location at 311 North Aberdeen St., Chicago.

The move became necessary in order to expand plant facilities. With the enlarged accommodations an increase of approximately 25% is anticipated in production schedules.

JORDON SHIFTS EXPORT SETUP

Jordon Refrigerator Co., has transferred its export division to Howard Refrigerator Co., Hatboro, Penn.

Maurice Zatko who managed the Jordon export division will now manage the export operation of both Howard and Jordon products at the Hatboro offices. No change in plans of distribution will take place on the Jordon line and the combination of both lines will afford a wider variety of products to the export trade.

All communications should now be addressed and directed to Howard Refrigerator Co., Jacksonville Road, Hatboro, Penn., Attention: Maurice Zatko, export manager.

IT HAD TO HAPPEN SOMETIME!



Even ice is now being merchandised through coin operated vending machines. F. B. Dickinson & Co., Des Moines, Iowa prefabricators of wood products, is manufacturing completely automatic machines like that shown here under its "Sturdy-Built" trade name. This unit automatically vends block, sized, or cubed ice. You pays your money and you takes your choice.

"FREON-22" PRICE DROPPED 10%

A reduction of approximately 10% in the price of "Freon-22" fluorinated refrigerant has been announced by Kinetic Chemicals, Inc.

The price cut—fourth for the material in three years—became effective with July 26 shipments.

The reduction was a reflection, company officials pointed out, of economies of greater production made possible by the increased manufacture of refrigeration and air-conditioning equipment designed to use "Freon-22". Further lowering of the price in the future, they said, may result if the present trend toward wider use of the material continues.

Equipment using "Freon-22" instead of other refrigerants, the company reported, is being increasingly used to obtain more efficiently the lower temperatures required for locker plants, for the faster freezing of foodstuffs, to raise the production of mechanical freezing units, and for home and farm freezers.

At the same time, the company said, "Freon-22" is now being used in many low-temperature industrial applications as well as in air-conditioning units. The material also is an intermediate in the manufacture of "Teflon" tetrafluoroethylene resin.

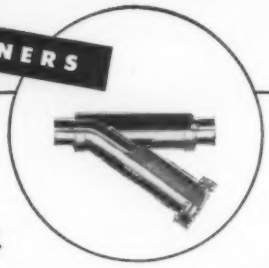
KEEFE FIRM ADDS "ESKOTRAY" LINE

William D. Keefe & Sons, Chaffee, N. Y. firm of sales representatives, has been named to handle the "Eskotray" line of plastic ice cube trays in the states of New York and Pennsylvania.

Associated with William D. Keefe in this enterprise are his three sons, Lawrence C., William V., and Vincent J. Keefe.

You pay no premium in price for the premium performance and exclusive patented features in Henry Products.

STRAINERS



• Newly designed "Y" strainer has forged brass end caps and brass plated steel shell. Removable screen cartridge positively located by means of spring tension. Connections: 5/8" to 4 1/8" O. D. S. and 1" to 3" F. P. T. Screen capacity: 23 to 175 sq. in. 8-bolt distortion-proof flange insures tight sealing.

Sold by leading wholesalers

HENRY VALVE COMPANY

Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications.

3260 W. Grand Ave., Chicago 51, Ill. • Cable: HEVALCO Chicago

DON'T GET UP!



Let an ARMSTRONG Refrigerant Gas Purger Handle the Job!

Send for Bulletin No. 173-A. Discusses the problem of non-condensable gases in refrigerating systems, explains the operation of the Armstrong Forged Steel Purger.



• This is NOT a picture of the typical engineer. It's just to emphasize the fact that an Armstrong Purger will relieve him of the time-wasting job of manually purging non-condensables from a refrigerating system. The engineer at Islay Dairy Co., Mansfield, Ohio, found this out after he installed an Armstrong Purger. Previously he had to be at the plant about three hours early to start hand purging. Now, the Armstrong Purger automatically removes the undesirable gases while the system is in operation, and he comes on the job fresh and ready for more profitable activities. In addition, the purger has substantially reduced power consumption by reducing head pressure and the refrigerant gas loss during purging is practically nil. These are some of the things that make an Armstrong Purger such a profitable investment.

ARMSTRONG MACHINE WORKS

889 Maple Street

THREE RIVERS MICH.

ARMSTRONG PURGERS

FIRE STOPS SWEDEN FREEZER PRODUCTION —BUT NOT FOR LONG

On June 10, 1948, employees of Sweden Freezer Manufacturing Co., Seattle, Wash., producers of ice cream freezing equipment for retail use, reported for work as usual, only to find their factory and offices fire-gutted. Firemen were still busy in the charred ruins, yet supervisors were already in meeting to chart plans for the prodigious reconstruction job ahead.

On June 22, just 12 days later, there was a special treat for work-weary employees at a new plant. They were served soft ice cream from the first freezer produced since the destruction of their old home.

In that 12 day period, long hours and hard work had accomplished much. A new plant had been found. Tons of charred and fire-damaged equipment and office supplies had been salvaged and moved to the new plant. Production and office facilities had been improvised.

Reconstruction was going ahead rapidly, but only part of the job was done. A large portion of the new plant's floor area was still taken up by ovens and bakery equipment remaining from the building's previous occupancy.

New tools, freezer parts, and production and office equipment were still being ordered. Men were at the fire-gutted plant, ferreting out additional salvageable records and other supplies. Office employees were working on hastily-constructed plywood tables, in lieu of desks. Inventories were still being taken.

But, despite all this, a line of new freezers was moving along the floor of the new plant.



Charred ruins were all that remained of this section of the Sweden Freezer plant following a disastrous fire. Assembly shop and shipping room of the gutted plant are shown in the foreground. Many completed units were destroyed.



Just 12 days after the fire, however, these new double-head soft ice cream freezers, produced with improvised manufacturing facilities, were moving down the assembly line in the new plant which the company had hurriedly obtained and placed in operation.

WAGNER BUYS NEW STORAGE WAREHOUSE

Wagner Electric Corp. St. Louis, manufacturer of electrical products, has announced the purchase of a modern brick warehouse in St. Louis containing 215,000 square feet of useful floor space.

The newly acquired building covers one entire city block and has four floors and a mezzanine.

OCTOBER IS MEETING MONTH

REMA-REWA MEET JOINTLY OCT. 21-23

Preliminary plans for the joint meeting of the Refrigeration Equipment Manufacturers Association and the Refrigeration Equipment Wholesalers Association at French Lick, Ind., on Oct. 21, 22 and 23, have been tentatively formulated.

Both REMA and REWA will hold a meeting of its Board of Directors on Wednesday afternoon, Oct. 20, with a discussion of mutual problems over the dinner table.

Thursday morning, Oct. 21, will be left open for golf and to allow those attending from the east to get in by train.

A general membership meeting is scheduled to begin at 2 pm Thursday afternoon, with a cocktail party by REMA planned for the evening.

A joint program beginning at 9:30 Friday morning, Oct. 22, will feature two speakers from REMA and two from REWA, followed by discussion periods on problems affecting both groups.

A golf tournament is planned for Friday afternoon with an evening banquet scheduled for 7 o'clock.

Saturday, Oct. 23, will be devoted to product section meetings.

* * *

LOCKER SHOW SET FOR CHICAGO OCT. 25

Ninth annual National Frozen Food Locker Convention is slated to be held Oct. 25-28 at the Sherman hotel in Chicago. Latest figures released by the Frozen Food Locker Institute indicate an advance registration of more than three-fourths of the exhibit space available at this show.

Convention program will be highlighted by a series of clinics to be held on the last three days of the conclave. These have been arranged to start late in the afternoon so as to interfere as little as possible with attendance at the exhibits.

Among the manufacturers of refrigeration equipment which have reserved exhibit space at the show are:

Iceberg Lockers, Inc.; Frigidaire Div., General Motors Corp.; Pacific Lumber Co.; C. Schmidt Co.; York Corp.; Dole Refrigerating Co.; Armstrong Cork Co.; Amana Society; Burge Ice Machine Co.; and Reynolds Metals Co.

* * *

GOVERNMENT BUYERS MEET OCT. 18-20

Third annual conference and exhibit of the National Institute of Governmental Purchasing will be held Oct. 18-20 on the roof of the Hotel Bellevue-Stratford in Philadelphia. NIGP president W. Z. Betts, director of the division of purchase and contract of the State of North Carolina, will be assisted in his conduct of the meeting by an outstanding committee of governmental buyers and a committee from the ranks of exhibitors at the show.

Last year more than 500 persons representing hundreds of millions of dollars of public buying power attended the convention, it is reported.

N. Y. STUDENTS FORM COOLING FRATERNITY

Students majoring in refrigeration, air conditioning, and heating have organized Beta Tau Upsilon at Walter Hervey Junior College, New York City, to function as a scientific society and promote interest in their chosen fields.

Ralph Scoverling, of Bay Park, N. Y., has been elected president of the group, which has an initial membership of 65. Scoverling stated that meetings will be held weekly in the school's air-conditioning laboratory.

It was also announced that a faculty advisory staff composed of Charles Broder, air conditioning consultant and instructor; and Charles Burkhardt, heating instructor, has been appointed.

Beta Tau Upsilon plans to publish a monthly bulletin of activities in the three fields as they concern the students. In addition, the new society will sponsor a series of six lectures on heating, air conditioning and refrigeration. Engineers in these fields will speak at these lectures.

NORGE JUGGLES KEY FACTORY PERSONNEL

Several important personnel changes in its sales and manufacturing departments have been announced by Norge Div., Borg-Warner Corp.

Involved in the shifts were J. N. Candler, who was elevated to director of manufacturing; H. L. Clary, who was named director of sales; and W. S. Law, who became general sales manager.

At the same time, the Division announced the resignation of R. W. Gifford, vice-president and assistant general manager, and I. H. Reindel, executive engineer, and the retirement of M. G. O'Harra, vice-president and director of sales. Gifford is also chairman of Borg-Warner International Corp., and will retain that association.

Candler will have full charge of manufacturing, engineering and quality in all Norge plants.

HAJOCA CORP. ADDS TWO NEW OUTLETS

Hajoca Corp., has added two new links to its chain of wholesaling outlets for refrigeration parts and supplies, according to H. E. Tippett, manager of the company's refrigeration division.

Hajoca's Columbus, Ga., branch has opened a new refrigeration department under the management of T. E. McCollough. This branch will serve western Georgia and eastern Alabama. T. H. Krayer heads the newly opened refrigeration department at Hajoca's Camden, N. J. branch. He will be aided by J. E. Stevenson as sales representative.

BARR HEADS M.A.D. SALES IN SOUTH

Earl F. Barr has been appointed southern divisional manager for Melchior, Armstrong, Dessau Co., Philadelphia wholesaler of refrigeration and air conditioning parts and supplies.

Barr, who has been with M.A.D. since 1934, as sales engineer in the Philadelphia area, replaces R. B. Davis, who has resigned from the company. He will continue to make his headquarters in Philadelphia.

GOVERNAIR RAISES ALL PRICES 7%

Effective as of Aug. 2, 1948, Governair Corp., Oklahoma City manufacturer of refrigeration and air conditioning equipment, has increased its published list prices by 7%. This increase will affect all orders shipped after September 1.

Substantial increases of material prices on motors, starters, copper, steel, and related products, the company reports, has forced this added price increase on Governair products. The company's last previous price raise was in May of this year.

MILLION DOLLAR FIRE RAZES WILSON PLANT

Nine fire companies battled a three-hour blaze which raged through the main assembly plant of Wilson Refrigeration, Inc., Smyrna, Del., on July 14, completely leveling the plant and causing damage estimated by John E. Wilson, president of the firm, at more than $1,000,000.

While firemen were still battling the blaze, workmen were busy establishing temporary administrative and engineering offices on the second floor of the Opera House.

Many of the company's records were destroyed, along with all stock parts in the second floor stock room and products still on the assembly line. As yet the company has announced no definite plans as to when the plant will be able to resume production.

The fire broke out in the paint room and spread to the main offices on the second floor. Cause of the fire was not immediately determined. Getting out of control as the Smyrna fire company arrived, the blaze rapidly spread to all parts of the building, and threatened adjoining dwellings. One fireman was injured fighting the fire.

Scores of explosions from hermetically sealed cans and barrels containing paint and paint thinner rocked the building from time to time while the firemen were attempting to bring the blaze under control. Volunteers and company employees assisted in salvaging as much of the equipment as possible.

SURVEYS SHOW VALUE OF AIR CONDITIONING

Independent surveys showing increases in business volume of from 20 to above 35% on a year-round basis as a direct result of air conditioning in stores, restaurants, and hotels were reported by Carrier Corp. representatives at the Second International Store Modernization Show.

The surveys on increases in business volume in air conditioned establishments were conducted by trade publications on either a nation-wide or spot basis. One study was confined to beauty shops in the state of Ohio. The poll showed that 17% of those questioned were using air conditioning, with an additional 7% in process of installing such equipment.

The air conditioned shops reported "an average increase in yearly dollar volume, following installation, of 36%." Approximately 95% of the conditioned shops showed an increase in "new customers."

Individual drug stores reporting from Detroit, Lincoln, Neb., Davenport, Ia., and Asheville, N.C., showed sales increases ranging from 20% to well above 30%, with sales in some individual lines increasing by as much as 50%. The latter figure applied to summer toiletries in Lincoln, and to lunch business in a chain in Davenport.

Publishers in the hotel and restaurant field reported that 98% of the individuals questioned considered air conditioning a "good investment," and found patronage increases ranging to above 35%.

NELSON CORP. PLANS PLANT ADDITION

Herman Nelson Corp., Moline, Ill., manufacturer of heating and ventilating products, announce that contracts have been signed for the erection of a new factory building to add 56,000 square feet of additional working space.

The building will be of one-story, steel construction and will serve as an addition to the large manufacturing plant built in 1945. The estimated cost of the building and equipment will be $200,000.

CARRIER EXPANDS MARINE SERVICE

Sharply increased business in recent months has necessitated the expansion of the service department of Carrier Corp.'s Marine Department. Located in its new headquarters at 3232 Greenpoint Ave., Long Island City, New York, Carrier Marine Service now has twice as much floor space at it did in its previous location.

From this new headquarters, the Marine Department directs its service activities in the principal ports of the U.S. It provides 24-hour service for ships which put into New York Harbor and supplies spare parts for rapid shipment to representatives in any major port in the world. A staff of 25 specialists under George R. Numrich, marine service and construction manager, is now required to handle headquarters activity.

GOV'T GROUP URGES BETTER FACILITIES FOR FOOD STORAGE

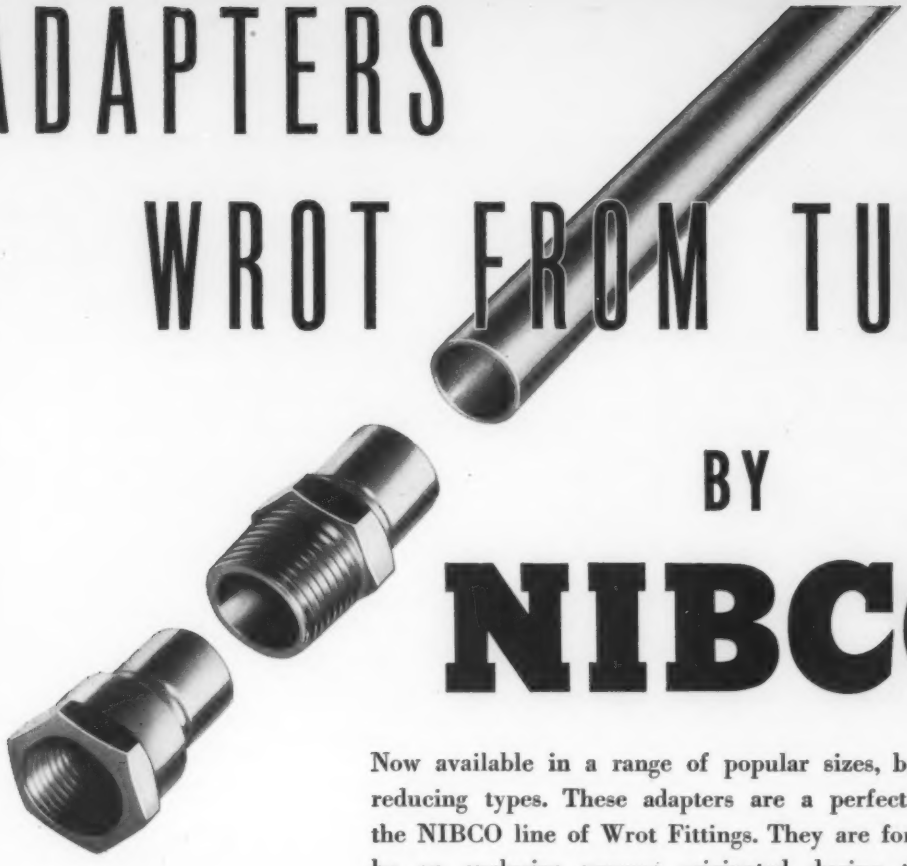
Technical advice and suggestions for improvement in the preservation of the nation's perishable foods by refrigeration, from the farm to the consumer, was contained in the report of the Cold Storage Advisory Committee following its initial meeting.

It was the concensus of this committee, named recently under the Research and Marketing Act, that refrigeration of foods has become an essential in the nation's food economy. Because of the need for basic scientific information in the refrigeration of farm commodities, the committee recommended for consideration a number of fundamental researches dealing with the effects of low temperatures and ice formation on perishable foods.

GENERAL CONTROLS OPENS NEW BRANCH

General Controls has announced the opening of a new and enlarged Denver factory branch office. The new office is located at 1162 Elati Street. M. S. Wilson is branch manager of this office.

ADAPTERS WROT FROM TUBES



BY NIBCO

Now available in a range of popular sizes, both straight and reducing types. These adapters are a perfect complement to the NIBCO line of Wrot Fittings. They are formed from tubes by an exclusive process originated during the war, of red brass material which is far superior to bar stock from which adapters are usually made. Check these 10 points of superiority; mail coupon today for detailed information. No obligation.

10 POINTS OF SUPERIORITY

1 Made from tube

2 Entire fitting wrot or forged

3 Red brass material

4 Perfectly formed threads

5 Husky wrench hexes

6 Manufactured to A. S. A. standards throughout

7 Thickness of cup approximately equal to that of the tube, making soldering quicker and more foolproof

8 Cup extended away from threads. Comparatively little heat transferred into threaded section

9 Low initial cost

10 Range of sizes — 1/4" to 2"

NORTHERN INDIANA BRASS CO.
914 Plum Street, Elkhart, Indiana

Gentlemen:

Please send detailed information about NIBCO Wrot Adapters from tubes.

Name_____

Street_____

City_____ State_____

MAN OF THE MONTH . . .
Continued from page 50

hour compared to the 4 gallons per hour produced by the old unit. This electric unit, which Thomas sold for $1200, was still operating up until just a few years ago.

Shortly after this unit was completed, however, Thomas dropped out of this business, and Bob once more found himself out of a job. This was in the fall of 1932, and it was then that Bob caught on to the most stable job of his varied career. He became a serviceman for Indianapolis Power & Light Co. at 50c an hour.

He worked his way up through this department, handling service on all appliances, and after four years became foreman of the utility's repair department. When he left this company on a leave of absence two years ago he was supervisor of its entire service operations. Theoretically he is still on leave of absence.

In 1941 Bob embarked on still another phase of his career which was in a way to prove a turning point in his life. He started building home freezers at home in his spare time, and it was this activity which was to lead directly to his establishment as an independent business man and indirectly to the development of his heat pump system.

About this time Bob moved his family to a rural home a few miles from town. With no corner grocery store to rely on any longer, the family set about to cultivate a large victory garden. Bob simply decided that the most practical way to preserve this freshly grown food was to freeze it, so he built a 12-cu. ft. freezer in his basement. Even Bob himself figured that this was probably a bigger unit than they would ever need, but much to his surprise it was filled to the brim in less than six weeks.

Sells First Freezer

Bob then started to construct a 15-cu. ft. unit, also for his own use, but one of the neighboring gardeners from whom the Webber family had bought some large quantities of vegetables for freezing saw the unit and talked Bob into selling it to him.

Up until then, the building of the freezers had really been just a hobby with Bob. In fact, he actually had exhibited his first freezer in the utility's annual hobby show—and had won first prize. But when his gardener friend practically begged him to sell his second unit, Bob began to realize that his "hobby" had real commercial possibilities.

Consequently he started on a limited production schedule, building two 18-cu. ft. freezers a week after his regular hours of work at the power company, and selling them for $425 each. In addition to these standard units, he also started building custom-tailored models, prefrabricating them in sections and then erecting them on the spot. One of these custom-built jobs sold for $8000.

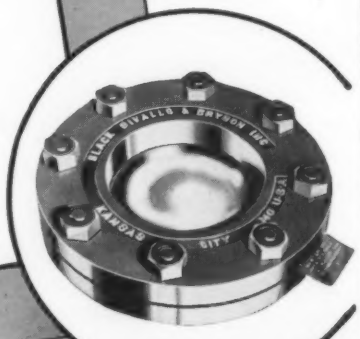
Business Expands Rapidly

The business soon outgrew his basement workshop, so he moved his operations out to the garage. "The neighbors criticized me for leaving my car out in the weather," Bob laughs, "but I was making money in my garage and I figured that was more important than keeping my car nice and shiny!"

He operated on this basis all during the war. Then in January, 1946, he hired his first employee. With this

PREVENT OVER-PRESSURE TROUBLE

in your refrigeration units



with

BS&B SAFETY HEADS

Protect receivers and copper tubing from rupture. Save compressors from destructive over-pressure. SAFETY HEADS offer that positive margin of safety that prevents such accidents. Eliminate costly equipment losses . . . save on costly shut-downs. The simple rupture disc of the SAFETY HEAD absorbs the shock of over-pressure . . . bursts in tension at pre-set pressure.

SAFETY HEADS provide a full-throated, pipe-sized escape point. Fractured discs are easily, quickly replaced. Tamper-proof, fool proof SAFETY HEADS offer you guaranteed performance. A wide selection of types assures you of tailor-made protection. Write today for complete details. Address Special Products Division, Black, Sivalls & Bryson, Inc., Power and Light Building, Kansas City 6, Mo.

EFFICIENCY RELIABILITY

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BLACK, SIVALLS & BRYSON, INC.

KANSAS CITY, MO. OKLAHOMA CITY, OKLA.

added help he managed to double his production. He continued to run the business in his garage, however, until the next year, when he bought an old residence on the southern outskirts of the town for $9000 and spent another $3500 to convert it into the establishment which is now Webber Appliance Co. at 2740 Madison Ave.

Obtaining the Westinghouse franchise, Bob finally opened his full fledged appliance store on Feb. 15, 1947. In his first full year of operation, his gross sales totaled more than $100,000.

Later in the year he moved his home freezer manufacturing operations from his garage to a cinder block shop which was built especially



Bob inserted these pipes into his back yard so that he could check the ground temperature at varying distances from the trench which holds the heat pump coil.

for this purpose on the rear of the lot on which his new appliance store was located.

Bob now has a total of 22 employees working for him. He believes in treating his employees well, and in return they really put out for him. His first employee, the fellow who helped him build the freezers in his garage, recently was transferred to the company's sales staff and in his first month as a salesman sold $4200 worth of equipment.

In his freezer shop Bob now has five men, each of whom has been trained in all departments of the work so that he can build a freezer from scratch. All his employees are war veterans.

Webber freezers really have sold themselves. "All our advertising has been word-of-mouth advertising by satisfied users," Bob reports happily. "All I've done is build them. I'm no salesman. But I haven't had to be, for I don't think I have a single freezer customer who hasn't directly or indirectly sold at least one more unit for me."

Always interested in helping young fellows get a start in life, and realizing that his own success in the home freezer field has been largely due to localized manufacturing, installation, and servicing of his units, Bob has inaugurated a plan whereby any young man with a little initiative and mechanical ability can start a profitable business of his own.

As a result, the Webber freezer, which features a patented heat exchanger claimed to reduce current consumption and increase efficiency, now is being manufactured by a number of small companies throughout the country under special franchises which Bob has granted.

These contracts call for an initial payment based upon sales potentials in the area in which the licensee is to operate, and a small royalty payment for each freezer manufactured. In return, Webber provides a 5-year exclusive franchise, training for the

PA 100* spells . . . 7-WAY SAFETY

1. maximum capacity . . . 2. instant action . . . 3. removal of acids and corrosive compounds . . . 4. freedom from caking . . . 5. freedom from channeling of refrigerant . . . 6. will not attack metals or alloys . . . 7. dust-free drying. . . . No wonder more leading service engineers demand PA 100 for all their refrigerant drying needs . . . Your jobber stocks PA 100.



DAVISON refrigeration grade SILICA GEL

. . . in the can with the blue label and in dehydrators charged by the cartridge manufacturer.

*T. M. REG. APP. FOR

THE DAVISON CHEMICAL CORPORATION
Progress through Chemistry
BALTIMORE-3, MD.

PIONEERS AND DEVELOPERS OF SILICA GEL

Canadian exclusive sales agents for DAVISON SILICA GEL:
CANADIAN INDUSTRIES LIMITED, Sales Division, Chemical Group

licensee's employees, the privilege of purchasing needed materials from Webber Appliance Co., and a continual interchange of new ideas on manufacture, installation, and sales of these freezer units.

"This licensing system," Bob points out, "is proving to be a splendid opportunity for young men without much capital who wish to start a small business of their own. It also provides localized installation and service facilities for Webber freezers. Less than $200 worth of equipment is needed by licensees under this setup. I myself had less than $50 worth of tools when I first started building these freezers."

Bob's developments in the heat pump field, which have achieved more universal recognition than any of his other efforts, really were an offshoot of his work with home freezes.

It all began about 3 years ago while he was experimenting to see how low he could pull the temperature in the 6½-cu. ft. freezer which is located in the kitchen of the Webber home.

He pulled the temperature down to —39 F, and while the unit was operating under these conditions he happened to place his hand on the compressor discharge line—and nearly burned it off. A check revealed that the hot gas was coming out of the compressor at a temperature of 183 F.

Used Wasted Heat

This was just too much heat to waste, Bob decided, so he determined to put it to work. Consequently he utilized the compressor heat from the four home freezers in his home (he has 12, 15, and 18-cu. ft. models in his basement in addition to the smaller unit in the kitchen) to heat water in a tank. This heated water he then circulated through hot water radiators in the two downstairs bedrooms of his home and heated them in this manner all winter.

This arrangement proved so satisfactory that the following year he decided to utilize the earth as a source of heat and extend the system to air condition the entire house. He buried 400 feet of ¾-inch tubing in a 50-foot trench in his back yard, tore out his conventional furnace, installed a 3-hp Servel air cooled condensing unit in his basement, and changed the system over from hot water to hot air heat.

As he was sure it would, this system performed satisfactorily, and he has been heating and cooling his house with this home-made heat pump system ever since. And the records show that his house has been kept at a constant temperature of 75 F, plus or minus one degree, both summer and winter.

Freezers Paid for Pump

When Bob first conceived his idea of the heat pump back in 1945 he was still working for the power company at a salary of $250 per month. This wasn't much more than enough to support his family, so he financed his further heat pump experiments largely through the sale of his home freezers. He worked for the utility during the day, built freezers at night —and designed and built his heat pump system in his spare time.

He did, however, manage to enlist the cooperation of the utility in completely instrumenting his heat pump system when he finally got it into working order, so that complete and accurate records of its operation could be made. The results of these

Why Lipman and GR are *profitable* Lines to Sell

ESTABLISHED ACCEPTANCE—Lipman Commercial Refrigeration has been well known for 30 years, GR Air Conditioning for 25. Their reputations for dependability make sales easier.

TWO COMPLETE LINES put you in an excellent competitive position. Lipman machines available in ¼ thru 40 hp. — air and water cooled — with ammonia, freon-12 and methyl chloride refrigerants. GR line includes self-contained and remote air conditioning units for commercial uses.

WELL ENGINEERED, units are moderate speed, heavy duty, rugged — perform well, stand up in service.

PROMPT DELIVERY possible on most units.

SALES HELPS consist of national advertising to consumer markets — useful sales literature — newspaper ads you can use to fit your needs — engineering service to help you . . . *real cooperation right down the line!*

Get complete information on handling the profitable Lipman and GR lines — call, wire or write Dept. R9 today.

GENERAL REFRIGERATION DIVISION
YATES-AMERICAN MACHINE CO.
Beloit, Wisconsin

tests more than lived up to Bob's expectations.

Now a new Indianapolis firm, Webber Engineering Co., has been organized to develop the commercial potentials of Bob's heat pump system. Bob supplied the patents and local financiers put in the capitol. Bob himself serves as first vice president of this organization.

When finally developed into a production unit, the Webber heat pump will be sold at first only to electric utilities for experimentation purposes. When this "fact-finding period" has been concluded, it is planned to market the unit directly to home owners.

People have come from such places as England, France, Norway, and Sweden to visit Bob and to see his heat pump, and written inquiries have been received from almost everywhere in the world. Former Secretary of Agriculture Claude Wickard has visited Bob three times



"Tish", the family's German Shepherd dog, carries the mail from the rural route box.

to follow the system's development. Last fall a committee of 17 utility officials from the Edison Electric Institute came to look the unit over.

Bob has received more than 2000 letters of inquiry from foreign countries, and because of this fact Bob Jr. now has become an ardent stamp collector.

These interested persons aren't the only people, though, who feel that the Webber heat pump has real possibilities. Bob does too. Best proof of this is the fact that he turned down a cash offer of $100,000 for his patents just before the Webber Engineering Co. was formed. And 100 G's is a lot of lettuce to turn your back on!

Typical of Bob's inventive turn of mind is this incident. Last year Indianapolis was visited with an unseasonable warm spell in March, and the fruit trees in the Webber back yard began to bloom profusely. All but one, that is. That one had roots which grew so close to the frost of the heat pump coil that its blooming was retarded.

Then came April and a killing spell of 20-degree weather. Most of the fruit trees promptly died, and never did show signs of life when the warm weather returned for good. But the one tree whose growth had been retarded came through the late frost with flying colors, and was the only tree in the whole yard to bear fruit that spring.

Now Bob wonders if maybe his heat pump system doesn't have a possible application in commercial orchards, for controlling the budding and bearing cycle of fruit trees. One of these days he hopes to do some further

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REFRIGERATING EFFICIENCY
Specify
STANGARD
PRIME SURFACE COLD PLATES



- STANGARD plates are made for various applications, in any size, shape or form, including stainless steel—
- PROMPT attention is given to new orders, with delivery schedules assured—

FOR DETAILS
WRITE
STANGARD
46-76 Oliver Street • Newark 5, N. J.

work along this line.

Bob Webber as a man is just the kind of a guy you might think him to be. A modest, unassuming fellow who likes best to work with his hands, he is completely unspoiled by the international attention which has been showered upon him.

He lives quietly in his comfortable 7-room suburban home with his wife Inez, an Indianapolis girl who was one of the reasons why he finally settled down, and their two children Robert F., 11, and Constance May, 9.

The family lives well and eats well —on a diet that consists about 90% of frozen foods stored in their own home freezers.

With the pressure of his present activities, Bob really doesn't have much spare time, but he still likes to play golf (he's a southpaw who shoots pretty consistently in the 90's) and bowls (he used to carry a 165 average when he bowled on the power company's team). But his favorite sport really is table tennis, and it is at this pastime that he is most expert. He proudly boasts of having played Jimmy McClure, one of the nation's top ranking players, on many occasions.

Bob is a member of the Lions Club, as well as being a 32nd degree Mason and a Shriner. Both Bob and Inez are active in the Parent Teachers Association, and the family attends the Methodist church (primarily, Bob admits, because his son wants to go to the same church as his chum).

The Webbers have two pets, both of which really are members of the family. "Tish", the German Shepherd dog, is the children's constant playmate and guardian. "Lilly", a beautiful gray Persian cat, is really Constance's favorite. The two pets get along most amiably together, even to the extent of sleeping together on cold winter nights.

Yes, Bob Webber, who never had the benefit of a college education, has come a long way in the refrigeration world—owner of his own appliance store, manufacturer of home freezers, and a heat pump experimenter whose name has become internationally known.

He's come a long way, but he hasn't lost his perspective or his sense of values, for Bob can readily remember the day, not too long ago, that he had to borrow $50 from a bank in order to buy a stock of meat to store in the first home freezer that he built for his family.



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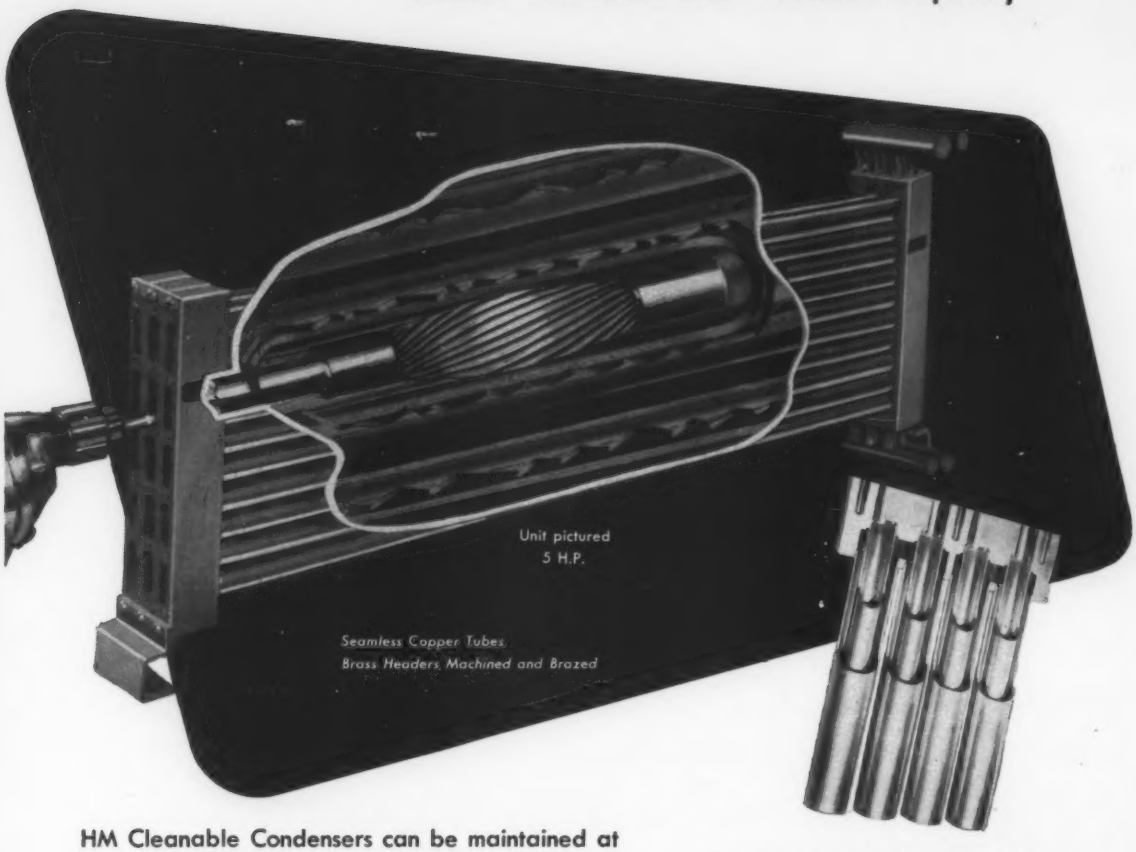
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Combining many of the best features of the "Cold-Wall" Imperial and Master lines of Frigidaire household refrigerators, this new DeLuxe line features models with 7, 9, and 11-cu. ft. capacity. Cooling is provided by coils in back and bottom of food storage compartment, plus gentle diffusion of air from the full-width frozen food compartment. This two-shelf compartment holds almost 50 pounds of frozen food. Ice cube trays, located on a separate shelf for faster freezing, are provided with a special handle which loosens cubes without defrosting.

NEW UNIT EFFICIENCY *always*
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and the new two-stage design insures maximum heat transfer capacity



HM Cleanable Condensers can be maintained at "new-unit" efficiency and economy by regular and continued use of a standard cleaning tool. Water tubes are accessible at both ends—just loosen a few bolts and slide the end plates off—and there is nothing to obstruct the simple cleaning operation. Each quick cleaning operation takes only minutes, yet restores copper water surfaces to their original heat exchange efficiencies and adds months and years of the most efficient and economical service to the life of your refrigeration unit.

HM's new two-stage condenser design affords greater concentration of copper water-tube surfaces in the lower portion of the condenser. The smaller top water tubes allow ample refrigerant space, thereby eliminating reistance or pressure drop and affording the lowest possible head pressures. With this new construction, greatest-possible heat-transfer values are effected.

HM Halstead & Mitchell

JOBBERS in all principal cities carry HM condensers in stock.

OFFICES: Bessemer Building, Pittsburgh 22, Pa.

THE HEAT PUMP . . .

Continued from page 41

nishing the heating and cooling requirements with a heat pump.

One method commonly employed, particularly in the smaller sizes, is achieved by changing the refrigerant flow, as illustrated by Figure 2. In this arrangement the air or water used for heating and cooling space is always brought in contact with the conditioner coil, and the air, water, or the earth is always brought in contact with the condenser-cooler.

During the heating cycle, by positioning the valve to position ½ and ¾, the high-pressure, high-temperature refrigerant gas from the compressor is made first to go to the conditioner coil where it is condensed, giving up its latent heat to the medium passing over the surface.

From the conditioner coil, the liquid refrigerant flows through the check valve, liquid receiver, and expansion valve to the condenser-cooler where it changes from a liquid to a gas, absorbing the required latent heat from the heat source.

During the cooling cycle, by positioning the valve to position ¼ and ⅞, the refrigerant gas from the compressor is made to go first to the condensor-cooler where it is condensed, giving up its latent heat to the surrounding air, water, or ground.

From the condenser-cooler, the liquid refrigerant flows through the check valve, the liquid receiver, and expansion valve to the conditioner coil. In the conditioner coil, the liquid refrigerant changes to a gas, absorbing the necessary latent heat from the air or water which is being circulated to the conditioned space.

Another adaptation of the heat pump cycle is illustrated by Figure 3. This arrangement is principally used in industrial applications involving concentration or distillation of solutions.

The thermocompressor compresses to a higher temperature and pressure the vapors taken from the solution and passes them through condenser "A," located in the evaporator "B." In condenser "A" the steam vapor condenses, giving up its latent heat of vaporization to the solution in evaporator "B" to maintain the process. The condensate from the condenser and the concentrates are taken out at the point indicated.

Water Heater Cycle

In addition to the heat pump cycles illustrated by Figures 1, 2 and 3, another arrangement applicable in the residential and commercial fields is the domestic heat pump water heater. One possible equipment arrangement of the heat pump water heater is shown by Figure 4.

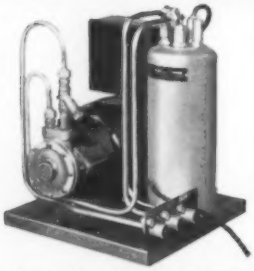
The compressor transfers to the condenser the heat absorbed by the cooling surface or evaporator plus the heat equivalent of the work of compression. The condenser in turn passes this heat to the water in the storage tank.

Present day practice is to maintain the domestic hot water supply at 140-150F. This high water temperature results in a corresponding high condensing temperature which adversely affects the coefficient of performance. Existing pilot model units have an average coefficient of performance of 2½ to 3½.

From this brief description of the heat pump cycle and the various possible equipment arrangements, it is



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1. User gets up to 5620 glasses of highly carbonated water from a single tank of CO_2 gas. This is equal to 281 glasses per pound of CO_2 gas used.
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6. Stainless steel, long-life construction.

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Originators of Instantaneous 80° 40° *Liquid Cooling Devices*
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evident that: (1) A suitable heat source must be available; (2) the equipment must have a reasonable first cost, designed, selected, and assembled to give long life, operating trouble-free at maximum efficiency; and (3) a suitable distribution system must be used to provide proper circulation to the conditioned space.

Heat Sources

It is assumed in Figure 1 that an F-12 refrigerant compressor, operating at a suction temperature of 45F and a condensing temperature of 107F, absorbs 13,250 Btu/hr from the surrounding air in changing from a liquid to a gas in the evaporator, and that the heat rejected from condenser surface "A" will be approximately 16,100 Btu/hr, requiring one kw input at the motor terminals.

The difference of 2850 Btu/hr between the 13,250 absorbed by the evaporator and the 16,100 Btu/hr rejected by the condenser represents the heat added due to the work of compression.

The total heat delivered divided by the heat equivalent of the required work to produce the effect, commonly called the coefficient of performance (cp) = $\frac{16,100}{3413} = 4.7$; that is, 4.7 more heat is delivered to the space than the heat equivalent of the energy used at the motor terminals.

It is important to note that the cp of 4.7 obtained is for the compressor-motor combination only and does not include the electrical energy of any of the auxiliaries, such as fan, pump, etc. Also, the relatively high suction temperature and relatively low condensing temperature used in Figure 1 favor a high coefficient of performance.

Figure 5 gives the relation between the suction temperature, head pressure (condensing temperature), and the coefficient of performance of a present day conventional F-12 compressor-motor combination. If, instead of the 45F suction temperature and 107F condensing temperature used for Figure 1, a 30F suction temperature and a 107F condensing temperature are used, the cp would fall to 3.3.

If on the other hand, the suction temperature remains 45F and the condensing temperature is increased from 107 to 120F, the cp falls to 3.8.

Therefore, for a maximum coefficient of performance it is necessary to operate at a relatively high suction temperature and a relatively low condensing temperature, which means a high heat source temperature and a low delivery temperature for the heating medium going to the conditioned space.

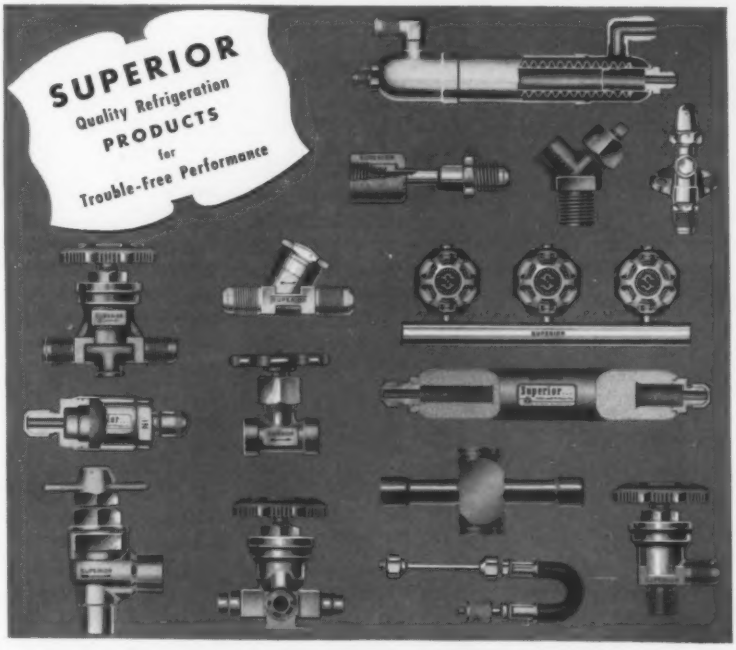
An ideal heat source may be defined as one which maintains a uniform year-round temperature of 50-70F and which is also abundant and cheap.

There are three known heat sources which may be applicable to heat pump applications.

Well water is satisfactory, providing it is chemically suited, not requiring special metals or extensive treatment, and providing means can be found for its disposal after use.

The chief disadvantage of water is the uncertainty of finding it in any given location. The cost of drilling and maintenance further detracts from its use in many areas.

Earth as a heat source, particularly for the residential heat pump, offers interesting possibilities. At the pres-



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ent time at least eleven organizations, including universities, manufacturers, electric utilities, and other research groups, are conducting investigations in order to make available more data on the subject. However, since very little reliable data is available on heat conductivity to and from the soil, considerably more research must be done before this heat source can be properly evaluated.

From the standpoint of availability and cheapness, air is an attractive heat source. However, many areas in the United States experience not only wide fluctuations in air temperature but the temperature drops quite low during certain periods of the year.

This disadvantage of having the lowest heat source temperature when the heating requirements are the greatest presents design problems which may be difficult to overcome in a practical manner in many areas. Possibility of frost accumulation on the heat absorbing coil at outdoor temperatures in the neighborhood of 32F also is present when air is used as a heat source.

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THE HEAT-X-CHANGER CO., INC.
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HE STARTED AT THE TOP . . .

Continued from page 38

cial users, the company has received sturdy support from Owen and his factory-trained crew of six mechanics and two pipe fitters.

"A repair service guaranteed against defects in material and workmanship has proved the shortest route to bigger sales volumes," Lundquist reports. "Our mechanics are trained to offer the kind of down-to-earth help that wins friends. They're trained to give any and all information about new equipment which the service customer may request."

Sales Training Stressed

Salesman training is Johnson's job. It is a company policy to have him on hand at every factory and distributor training school. Wisdom he gleans at these sessions is communicated to personnel at special staff training sessions held in the store.

If the Gillespie Appliance Co.'s past history is any criterion, the firm should be all set to really "go places" from here on in.

When it was founded in 1944 the business was operated from a poorly located 50 x 70-foot building. Its assets consisted of a Frigidaire franchise (but no merchandise!), a few parts, a service department, a manager, one salesman, a parts man, and a bookkeeper who doubled in brass as receptionist, parts salesman, service router, and chief complaint taker.

Today the firm is solidly established in a new $30,000 building on the town's "main drag". This modern, glass fronted, chrome studded, completely equipped store was thought to contain ample room for housing all of the company's operations, but the firm hardly had become settled in these new quarters before it was obvious that still more space would be needed. Consequently, construction was promptly started on a $6000 addition aimed at providing a complete layout of 8300 sq. ft. of sales and service space with a 165-foot frontage.

This is a far cry, indeed, from the company's beginnings four short years ago—but if Lundquist and his "kitchen cabinet" have anything to say about it, it will be merely a step in the right direction. They do business that way.

GATE AND GLOBE VALVES . . .

Continued from page 39

piece of fine emery cloth around a flat tool and rub or lap the entire bearing surface (both sides of disc) to a smooth even finish. Remove as little as possible. The usual cuts and scratches found on body seat rings can also be repaired by lapping. Use an emery block small enough to permit rubbing of the seat-ring faces all around. (Illustration 6)

Work carefully and watch closely. Avoid removal of too much metal to prevent the disc from seating too low. When seating surfaces (discs and body seat rings) seem to be properly lapped, coat the face of the disc with Prussian Blue and drop the disc into the body to check the bearing. When a good continuous contact is obtained between the disc and body seat-ring face, the valve will be tight and is now ready for reassembly.

When assembling, insert the stem in the bonnet. Install new packing. Assemble other parts, including the gland and gland flange, and then attach the disc to the stem.

Replace the bonnet gasket, and place the complete assembly in the body. Lift the disc off the body seat-ring face so that the bonnet can be properly seated on the body before bolts are tightened. Pull the bonnet bolts up evenly in pairs diametrically opposite each other.



"It's nice alright—but I still like the old fashioned igloo!"

Good practice suggests testing the repaired valve before putting it back in service. This assures that repairs have been properly made and that the stuffing box is tight.

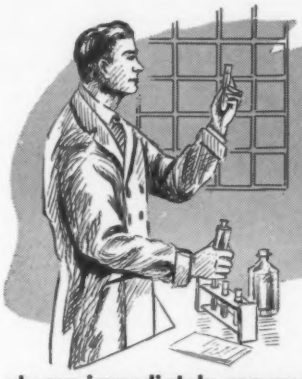
When body seat rings in gate valves must be replaced, they can be removed and replaced best with a power lathe. Chuck the body with the rings vertical so that the seat faces will be parallel with the face plate. Use a steel bar across the body ring lugs to unscrew them.

Removal of rings can be accomplished by hand by means of a cold chisel or hack saw to split the ring and then collapse it. Extreme caution should be taken so that the ring threads in the body are not damaged.

New rings must be pulled up tight against the shoulder on the ring so that leakage will not occur around the body ring. To tighten, place a steel bar across the lugs and pull up with a wrench. Be sure to coat the threads with a good lubricant before inserting the ring into the body. Lap in the same as when repairing a ring as shown in Illustration 6 for a perfect fit to the disc.

NAMED CROSLEY OUTLET

Independent Distributors, Inc., of Grand Rapids, Mich., has been named exclusive Crosley distributor in 27 counties in that area. Officers include Fred C. Sparks, president, and L. H. Withey, vice president.



Let's talk about Chemistry!

THAWZONE DATA

That a chemical agent is needed in a refrigerating system is not always immediately apparent to the engineer.

The ideal refrigeration unit would have an inert fluid circulating in a system made up of completely inert parts. This is, of course, impossible to realize in practice. The most carefully installed system contains traces of air, moisture, acids and other impurities.

THAWZONE
PATENTED
The PIONEER FLUID DEHYDRANT

In other types of systems, such as aircraft radiators, hydraulic brakes, gasoline, etc., it has been found practical to use inhibitors to correct a situation, rather than to try to reach the ideal state in which corrosion and reactions do not occur. Similarly, in a refrigeration system THAWZONE is used to remove traces of water and air that cause freeze-ups and corrosion.

THAWZONE is a practical solution to the problem of impurities which are difficult to prevent or remove by other means. Ten years of constant use have shown that THAWZONE, as an additive agent to refrigeration systems, is eminently practical.

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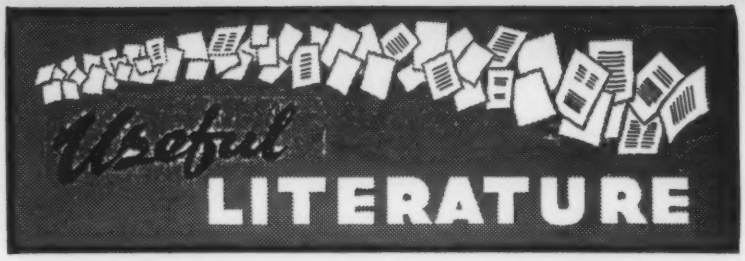
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317—Commercial Cases . . . A broadside illustrating and describing the line of commercial refrigeration equipment—display cases, reach-in cabinets, walk-in coolers, and home freezers—manufactured by C. L. Percival Co., Inc.

318—Fan and Motor Base . . . Catalog TR-801 detailing the nature and application of the "Duplex" twin rail base for fans and motors. Adjustable vibration control feature is completely diagrammed. Specifications are listed. Available from Korfund Co., Inc.

319—Freezer Alarm . . . A pocket-size folder describing and illustrating two models of the Enterprise freezer alarm. Installation procedure is outlined and prices are listed. Available from Enterprise Products Co.

320—Insulation . . . New literature (Form No. 618) presenting in pictures some new ideas in the application of "Tufflex" sound and thermal insulation. The insulating material itself is described in detail and stock sizes are listed. Available from Wood Conversion Co.

321—Electronic Filter . . . Bulletin No. 257 covering the "Electro-PL" air filter, newest in the line of electronic precipitators manufactured by American Air Filter Co., Inc. Design features, specifications, maintenance features, performance characteristics, and installation data are included. Capacity and dimension charts also are provided.

322—Coil Selection . . . "Selectomatic" charts providing a fast, accurate method of selecting the proper Marlo coil units for a wide variety of applications. Charts are easy to read and simple to use. All normal ranges of refrigeration are covered. Available from Marlo Coil Co.

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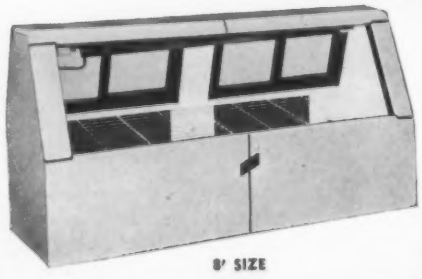
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Lingle Walk-in Refrigerators, Dry Beverage Coolers, Meat Display Cases, Cold Storage Doors and Sectional Reach-in Refrigerators. See your Wholesale Jobber in your territory or write to the Kansas City office for complete sales information.

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Yes! In production, Kelvinator condensing units are precision-tested to insure *peak* performance under all conditions. Their complete *dependability* is known by refrigeration men everywhere, just as the Kelvinator name is always known for the most advanced refrigeration design and quality manufacture. It's the name that always *sells* . . . always *satisfies!*

Call at one of Kelvinator's 50 convenient supply depots for your refrigeration needs. Each depot has a complete stock of Kelvinator-made parts and supplies, *competitively* priced. And you'll like Kelvinator's fast, friendly service . . . Kelvinator, Division of Nash-Kelvinator Corporation, Detroit, Michigan.

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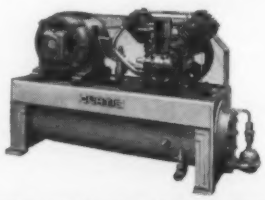
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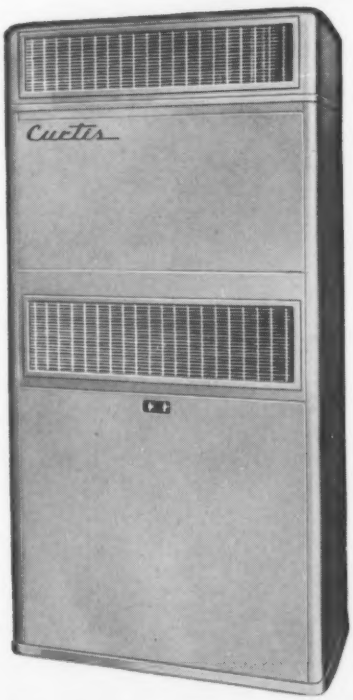
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Curtis Condensing Units for Commercial Refrigeration—¼ to 30 H. P., air and w. ter cooled.



Curtis Air Conditioning Units 3, 5, 7½, 10 and 15 Tons.

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94 Years of Precision Manufacturing

THE REFRIGERATION INDUSTRY

AB-597

68

New PRODUCTS

For further information on any of these products, simply list the key number at the head of each item on the special post card enclosed with this issue.

Air Conditioning Unit • P-280

Product: Central station type packaged air conditioning unit.

Manufacturer: United States Air Conditioning Corp., Minneapolis, Minn.

Features: Cools, dehumidifies, circulates, and ventilates air for ideal working or living conditions. Avail-



able in 9 sizes, ranging in capacity from 3 to 40 tons. Single 3-in-1 unit houses the refrigeration compressor section, the air cooling, dehumidifying, and circulating section, and the evaporative condenser section. New design features larger motors with full thermal overload protection. Evaporative condenser has been increased for greater balance. Cooling coils have been increased in depth for greater capacity. Insulation in all cabinets is glass fiber. Started by push button control the unit functions automatically.

Resistance Bulbs • • • P-281

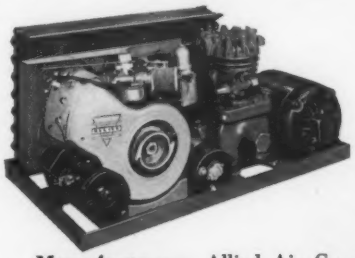
Product: Resistance thermometer bulbs.

Manufacturer: Paul G. Weiller, New York City.

Features: Metallic wires of exceptional stability. All wires except platinum are solidly imbedded in glass or fused quartz. Method of construction eliminates fragility and provides a solid path of heat conduction necessary for rapid response. Also provides protection against oxidation or corrosion. Before sealing, wires are treated at high temperatures in a vacuum, resulting in a thorough removal of mechanical strains left in the material from the drawing operations. Also removes traces of gas dissolved in the metal. When threaded connections are required, bulbs can be furnished with separable sockets or with threaded connections permanently fused to metal which has been sprayed onto the glass or quartz casing.

Transport Unit • • • • P-282

Product: "Transitemp" fully automatic, packaged, gasoline-electric driven refrigeration unit especially adapted to transport work but also applicable to stationary installations.

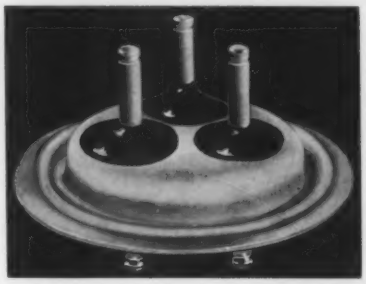


Manufacturer: Allied Air Conditioning & Refrigeration Engineering Co., Philadelphia, Pa.

Features: Compact and light in weight this unit provides more payload space. Thermostatic controlled positive starting mechanism. Operated by a reliable gasoline engine, with or without an auxiliary electric motor. Low, medium, and high temperature ranges. Air or water cooled. Includes automatic clutch, automatic choke, generator, and battery. Designed for truck, railroad, or marine applications, but also adaptable stationary installations, especially in rural areas.

Refrigeratior Terminals • P-283

Product: "Tronex" glass-to-steel refrigerator terminals.



Manufacturer: T. C. Wheaton Co., Industrial Div., Millville, N. J.

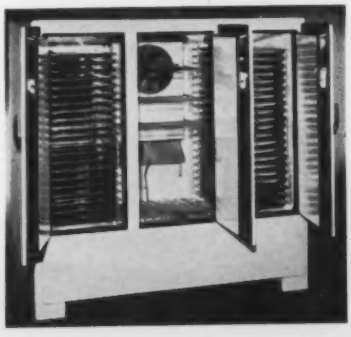
Features: Steel fused to Tronex glass provides economy and ruggedness. Weld projection relieves user of expense and problem of coining or machining the projection in the motor housing.

Dough Retarder • • • • P-284

Product: 48-cu. ft. bakery refrigerator for dough retarding.

Manufacturer: Frigidaire Div., General Motors Corp., Dayton, Ohio.

Features: Divided into three separate compartments and has space for 42 standard bakery trays. Two of the 16-cu. ft. compartments are used to hold these trays, while the third is left free for bulk storage of yeast, eggs, cream, milk, butter, fillings, and similar materials. Enables dough to be



mixed and molded 24 hours in advance. Interior surfaces finished in white porcelain. Forced air cooling

accomplished by a compact Frigidaire cooling unit mounted against the back wall of the liner. Operates with low temperature difference between unit and cabinet interior. No manual defrosting necessary.

Plier Set • • • • • • P-285

Product: Small plier set No. 14.

Manufacturer: Bonney Forge & Tool Works, Allentown, Pa.

Features: All three pliers are 4 inches in length and are designed especially for ignition, starter, generator, carburetor, and instrument work. Set consists of one flat nose plier, one short chain nose plier, and one diagonal cutting plier, all packed in a handy leatherette kit.

Coin Meter • • • • • P-286

Product: Completely packaged, electrically operated coin meter for appliance operation.

Manufacturer: Miller-Harris Instrument Co., Milwaukee, Wis.

Features: Electric slug rejector mechanism checks size, weight, metallic content, and hardness of coin. Use of Telechron motor and gearing provides almost perfect accuracy of timing. Contact mechanism rated to handle 30 amperes. Electrical interlock system provides protection against loss of coin due to current interruption. Free operation or multiple operation on one coin is impossible. Entire unit housed in heavy steel case with coin vault and coin shutes. May be mounted on machine or on wall of room. Models available for nickles, dimes, and quarters, with timing periods of 15, 20, 30, and 60 minutes.



Blow Torch • • • • • P-287

Product: Double-jet 92-A blow torch with pencil-point flame for greater precision in sweating solder-type fittings.

Manufacturer: Turner Brass Works, Sycamore, Ill.

Features: Provides flame within a flame, registering 2300 F by pyrometer reading. Dual valves permit selective flame control and quicker, more accurate regulation. Idling flame keeps torch fully generated for instant use. Objectional noise of single burner torch is eliminated.

Defrosting Tool • • • P-288

Product: "Freezer-D-Froster" tool designed for scraping frost from the interior surfaces of low temperature cabinets, thus simplifying defrosting.



BINKS

ALL REDWOOD TYPE "WS"
NATURAL DRAFT COOLING TOWER

Binks Type "WS" Redwood Cooling Towers will provide efficient, trouble-free service on any industrial application. Ready for shipment in 30 standard sizes, ranging from 10 to 1200 GPM.

The product of expert engineering and workmanship throughout, Binks Type "WS" Redwood Towers are prefabricated for easy field assembly by ordinary labor without skilled factory supervision. Recommended for cooling condenser circulating water from refrigeration and air conditioning compressors, water-jacketed machinery, and wherever cooling of water or other liquids is required.

Send now for Bulletin No. 40, giving full information on sizes, specifications and capacities of Binks Type "WS" Redwood Cooling Towers. State tower capacity required.

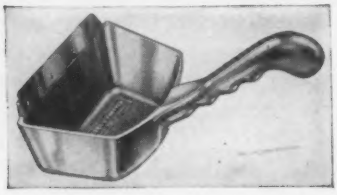
THERE'S A BINKS TOWER FOR EVERY COOLING JOB

Binks MANUFACTURING COMPANY

REPRESENTATIVES IN ALL PRINCIPAL CITIES ■ 3124-38 CARROLL AVENUE, CHICAGO, ILL.

Manufacturer: Marion Glass Mfg. Co., Marion, Ohio.

Features: Consists of cup-shaped aluminum alloy casting, fitted with a handle and a cutting edge of hard-



ened stainless steel. Blade is slightly narrower than receptacle, so that frost drops into cup as it is removed. Eliminates necessity of shutting off unit while defrosting, thus keeping cabinet at lower temperatures and keeping food in better condition. Frequent use prevents loss of food storage space due to accumulated frost.

Industrial Water Cooler • P-289

Product: Industrial type water cooler, which also will cool alcohol, light oils, beverages, certain chemical solutions, and other liquids.

Manufacturer: Temprite Products Corp., Detroit, Mich.

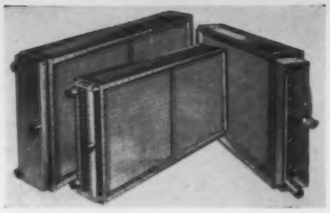
Features: High capacity obtained through cooling water instantaneously by means of rapid heat transfer



eliminates need for large storage tanks. Measures only 14 inches in diameter and 54 inches high. Design based on "flooded" cooling principle. Water coils are submerged in the liquid refrigerant itself, and heat of water being used passes directly into main body of refrigerant. Will deliver 1185 gallons of 40 F water per hour, assuming a 60 F inlet temperature. With inlet temperature of 80 F, capacity is 675 gph. Water temperature kept constant by automatic control valve. Operates with refrigerant temperature only 4 degrees lower than desired exit water temperature.

Cooling Coils • • • • • P-290

Product: New line of cooling coils.

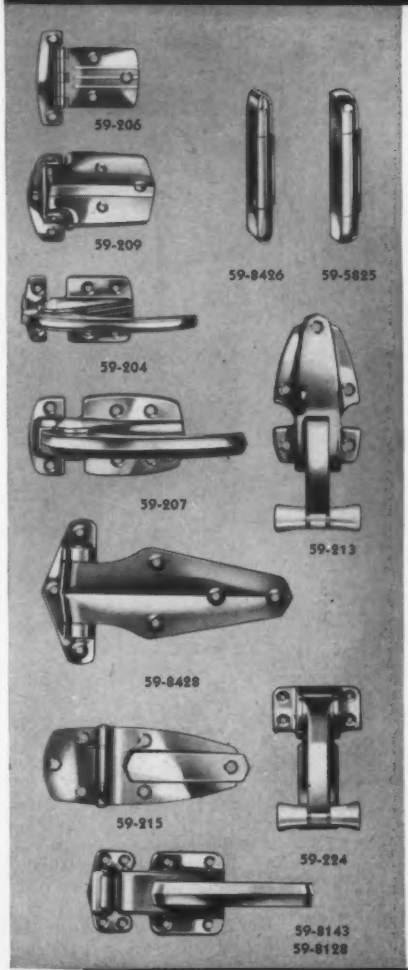


Manufacturer: Modine Mfg. Co., Racine, Wis.

Features: Available in a wide range of types and sizes. Coils for use with chilled water are provided in standard and cleanable styles in a

REFRIGERATOR HARDWARE

by NATIONAL LOCK...



DESIGNED FOR A VARIETY OF USES

Extensively field-proven on commercial and domestic applications, these matched designs of chromium plated refrigerator hardware consistently "ring the bell" with users. Ideal for Reach-in Cabinets, Display Cases, Back Bars, Florists Boxes, Bottled Beverage Coolers, Draft Beer Equipment, Coin-Operated Refrigerated Dispensing Machines, Milk Coolers, Low Temperature horizontal or vertical Cabinets, Stokers and many other units of refrigeration equipment.

Ask your jobber for complete information and prices.

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REFRIGERATOR HARDWARE DIVISION

total of 24 models and in 5 casing widths, (21¾ to 38¼ inches) and in 17 casing lengths (2 feet 8½ inches to 10 feet 8½ inches). Direct expansion type coils are furnished in four models and in the same casing dimensions.

Produce Case • • • • • P-291

Product: Refrigerated produce case.

Manufacturer: C. V. Hill & Co., Trenton, N. J.



Features: Wider and deeper display rack provides mass display and large capacity. Display deck measures full yard from front to back. Overhead fluorescent lights and full length back mirror. Entire display, despite its width, can be readily reached by clerk or customer, due to its low height. Refrigerated storage compartments fitted with convenient slide-out rollers and a hose connection for use in cleaning the case or sparkling the vegetables. Sanitary white ends and stainless steel front. Add-a-unit construction.

Transparent Lid • • • P-292

Product: "Sho-Sell" transparent ice cream cabinet lid.

Manufacturer: R. K. Merritt & Associates, Pasadena, Calif.

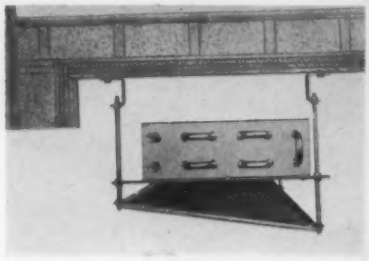
Features: Two hermetically sealed dead air spaces. Elevation of upper half into warm air eliminates top fogging under most conditions. Formed edges on all sides hug breaker strip. Small hinge, reduced to approximately the width of a pencil, provides full vision of products in cabinet. Non-removable rubber bumpers. No screws; no rivets; no metal.

Air Guide Baffle • • • P-293

Product: Air guide baffle adaptable to any make fin coil.

Manufacturer: Rempe Co., Chicago, Ill.

Features: Baffle and hanger assembly are exceptionally easy to install. Baffle causes cold air to drop in a sheet toward the floor from the



low side of the baffle pan, then rise up on the opposite side of the wall and back to the fin coil in a steady flow, thus assuring even distribution of air and even temperature throughout refrigerator or walk-in cooler. Pans are adjustable for proper pitch to induce free circulation of air. Baffle pans of 18 gauge galvanized steel, fully insulated, with ¾-inch flare connection for drain line.

Capacity Control • • • P-294

Product: "Thermatrol" device for maintaining even evaporator tem-



peratures and improving refrigeration system efficiency.

Manufacturer: Schnacke, Inc., Evansville, Ind.

Features: Eliminates need for by-pass methods in maintaining even evaporator temperatures and eliminates need for cylinder cut-out methods in reducing compressor capacity.

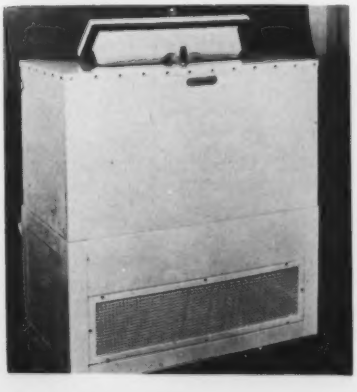


Reduces capacity in gradual curve, not in limited steps. Prevents unnecessary cycling and reduces current consumption in proportion to actual load. Automatically controlled valve actuated by back pressure controls flow of refrigerant pumped by compressor. Valve is butterfly type and may be adjusted according to evaporator needs. By-pass in butterfly eliminates possibility of complete vacuum condition. Mounted on suction shut-off valve between evaporator and compressor, this unit is easy to install. Construction and operation are simple.

Test Cabinet • • • • • P-295

Product: New research and testing tool for use in industrial, university, trade association, and research institute laboratories.

Manufacturer: Wilson Refrigeration, Inc., Smyrna, Del.



Features: Small, compact low temperature cabinet capable of holding a –40 F temperature. Capacity of cabinet is rated at 1½ cu. ft. Cabinet has 8 inches of insulation, a new type rubber throat, and an all-steel lift-type lid.

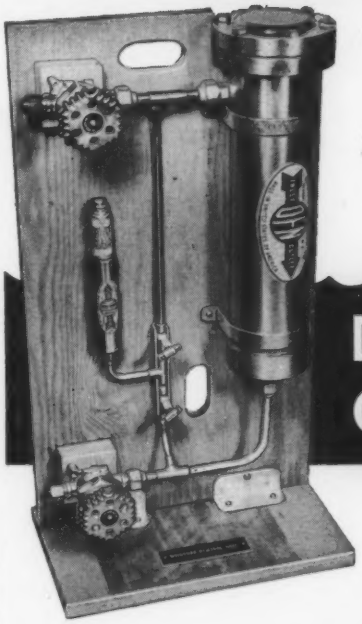
Check Valve • • • • • P-296

Product: Improved replacement check valve for Coldspot and Bohn direct unit drives.

Manufacturer: Wagner Tool & Supply Corp., Long Island City, N. Y.

Features: Check valve assembly is completely self contained in an all brass housing that has an extended portion ½-inch long by .3155-inch diameter. This extension is driven into the 5/16-inch opening of the original check valve seat, thus forming a pressed fit. Cartridge type of construction eliminates need of lapping or grinding. Can be installed or removed through upper port of unit. Tested and calibrated at factory. Only tool required is a standard 5/16-inch bolt.

Fastest, surest Drying Method ever developed!



1. **Instantaneous drying action**
   gets system running in few minutes.
2. **Complete drying action**
   down to — 60 dew point, by running 3 minutes per pound of refrigerant.

DFN MOISTURE CONTROL UNIT

Drying refrigeration systems is reduced to an exact science by the revolutionary DFN Moisture Control Unit. It not only dries with a speed and thoroughness never before obtained, but it also tells whether the system is wet—how wet it is—when it is dry—when a drier needs replacement.

The DFN Moisture Control Unit consists of a high-capacity cartridge-type drier, plus a moisture indicator, completely assembled with controls and mounted on a panel, ready to hook up. Because the dessicant is Ducal Drierite, it operates efficiently at refrigerant temperatures up to 150° F., permitting easy installation on the liquid line. When the system shows dry, remove Unit, install permanent DFN drier, seal up and future moisture troubles are eliminated.

See the DFN Moisture Control Unit at your wholesaler. Write us for detailed literature.

IT'S PORTABLE!

—dries many jobs in field, shop, factory

A single cartridge has the capacity to pick up and hold over 18 teaspoonfuls of water. 100% effective on each job until cartridge is exhausted. When unit is removed, all adsorbed water is carried away with it.

McIntire Connector Co.

257 Jefferson St., Newark 5, N. J.

ABOUT PEOPLE . . .

Continued from page 42

tomer's organizations who visit the company's headquarters in search of current information with respect to production schedules of specific orders. It is expected that this office will provide a smoother channel for expediting and advancing the company's overall customer relations program. Anderson has been employed by the Worthington organization since 1924.

New staff appointments in both the sales and engineering departments of Weatherhead Co. have been announced **Heyliger Church,** vice president in charge of sales, has been advanced to executive head of all sales divisions, both foreign and domestic. **R. P. Gibson,** formerly vice president in charge of the automotive sales division and manager of Weatherhead's Detroit office, has been appointed vice president and general sales manager. **M. C. Peterson,** who recently joined the company as sales manager of the industrial hose division, has been appointed assistant general manager. The two new appointments in the engineering department are **John D. Baldwin, Jr.** as chief product engineer, and **Charles H. Crawley** as chief product engineer, and **Charles H. Crawley** as chief design engineer.

●

Irving A. Ponon, national sales manager for Refrigeration Corp. of America during the past year and at one time treasurer of the company, has resigned to become president of Iroquois Commercial Corp., New York City financing organization Principal function of this firm, according to Ponon, is to assist in the increased sale of ice cream, frozen foods, beverages, candies, and other items requiring the use of refrigerated equipment for display and storage.



●

Marvin S. Bandoli has been appointed vice president in charge of sales of Tracy Mfg. Co., Pittsburgh. Bandoli will head the sales program for Tracy customized kitchens, a complete line of steel kitchen cabinets and sinks. For a period of years, Bandoli was with Nash-Kelvinator, having been national sales manager of the Kelvinator Div. Until recently, he has been president of the Bandoli-McIntyre Co., Los Angeles, appliance distributors in southern California.

●

Frank R. Kohnstamm was elected vice president of Jack & Heintz Precision Industries, Inc., at a recent meeting of the board of directors. Kohnstamm joined the company last October as general sales manager.

●

Wm. F. Hand has been appointed sales manager of Delavan Mfg. Co., Des Moines, Iowa, manufacturer of refrigeration replacement parts. Hand has been in sales work in related fields for many years, and was secretary and treasurer of Pneumatic Controls Corp., prior to his connection with Delavan.

All copper tubing and fittings ON THIS COMPRESSOR-CONDENSER ARE JOINED WITH EASY-FLO 45

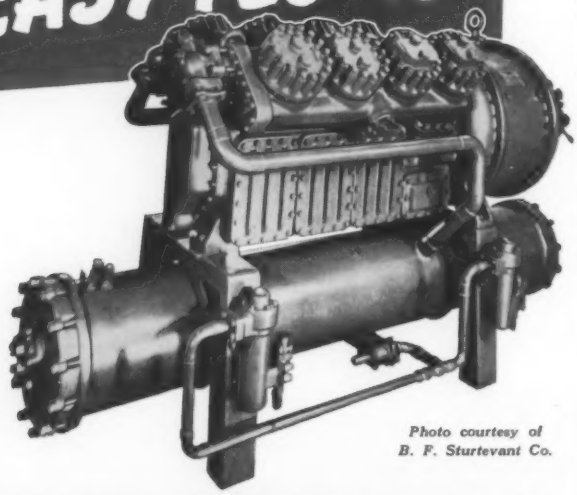


Photo courtesy of B. F. Sturtevant Co.

ALL COPPER TUBING AND FITTINGS on thousands of other refrigerating and air conditioning units also are joined with the low-temperature silver brazing alloys SIL-FOS and EASY-FLO. The method is widely used in manufacture, installation and repair, because it satisfies every requirement of the work. It produces 100% leak-tight joints that are as strong and durable as the parent metals—it is simple, fast and surprisingly economical. BULLETINS 12-A and 15 will give you complete facts. Write for copies today.

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The Artkraft*

BEV-FOOD THE ONLY

COMBINATION FOOD and BEVERAGE COOLER THAT CAN BE OPERATED WET OR DRY



A high quality, self-contained "plug-in" unit that offers the lowest cost per cubic foot usable refrigeration space in this size range.

Suggested retail price only

Each compartment can be used entirely for dry refrigeration. Top opening prevents "spill out" of cold.

$423.50 f. o. b. factory

IDEAL FOR

RESTAURANTS
ROADSIDE STANDS
DAIRY STORES
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BOWLING ALLEYS
MEAT MARKETS
DELICATESSENS
CANDY STORES
DRUG STORES

"The Bev-Food also restores and keeps cigars and cigarettes in perfect condition indefinitely."

SPECIFICATIONS

Sealed cabinet: 65⅜" x 38" x 29½".
Solid 3" insulation—Vermin-proof.
Top compartment: 35¾" high x 20¾" wide x 15½" deep. (Slightly over 6½ cu. ft.)
Food compartment: 21¼" wide x 28⅞" high x 20¾" deep. (Slightly over 7½ cu. ft.)
Total storage capacity: 14 cu. ft.
Finish: Exterior—Silver Blue.
Interior—Porcelain enamel.
Top and 2 sliding covers, stainless steel.
Condensing Unit: ¼ H.P., twin-cylinder air cooled. Equipped with Tecumseh, or Copeland unit.
Motor: ¼ H.P., 60 cycle, single phase, 1750 r.p.m. 110 volts, capacitor type.
Refrigerant: F-12 Freon.
Automatic light in food compartment.
8-point cold control.

DEALERS

Ask your distributor for this great profit-maker, or write us for his name. Distributed in many areas by G.E. Supply Corporation.

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Write for details of franchise for open territory.

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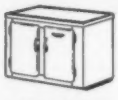
THIS COUPON FOR YOUR CONVENIENCE

Artkraft* MANUFACTURING CORPORATION
300 Kibby Street Lima, Ohio, U.S.A.

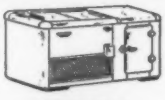
☐ Please send the name of the BEV-FOOD distributor in this territory.
☐ Please send details of distributor's franchise.

NAME.....
FIRM.....
STREET.....
CITY.....

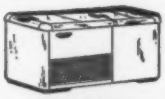
MANUFACTURERS OF THE FAMOUS Artkraft* BEV-LINE


LOW BOY


BEV-COOL


BEV-FOOD


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MAYTAG HOME FREEZER

SIGNS* OF LONG LIFE

QUALITY PRODUCTS FOR OVER A QUARTER CENTURY

- Manufacturers of the famous Maytag Home Freezer, Artkraft Bev-Food Beverage Cooler and Food Refrigerator, Artkraft Signs for National Advertisers, Artkraft Low Boy Table Top Refrigerator, Bev-Giant Cooler, Bev-Ette Office Beverage Cooler, Bev-Cool Bottle Coolers for Dr. Pepper, Double Cola, Whistle, Vess Cola, O-So Grape, B-1, Red Rock Cola.

* Trademark Reg. U.S. Pat. Off.

DRYING AGENTS . . .

Continued from page 45

is only one fifty millionth of a pound of water per square inch of internal surface.

It is not difficult to imagine that even a good drying job might leave two, three or four times this amount of water adsorbed to the surfaces in a system.

Another way of looking at it is that in this 1-hp system ten parts per million of water, or .036 grams, if spread in a uniform film would be less than one-half of one millionth of an inch thick. Such a film is much thinner than that which would be caused by breathing on a cool surface.

It will be shown that the effect of oxygen can be potentially much larger than the effects of small amounts of water, which we have just discussed. Some other numbers are of interest in connection with the effects of oxygen.

Suppose we again have a 1-hp system in which the free gas volume in the condenser, compressor head, and receiver is ¼ cu. ft. Let us assume that conditions are such that we should have a head pressure of 85 lbs. per square inch.

Suppose we find on measuring that the pressure is 1 lb. higher, or 86 lbs. This means that we have a certain amount of air in the system and computation will reveal that about 1% of the free space is filled with air.

This space would normally hold 1 lb. of refrigerant, which means that very roughly we have about 1% of 1 lb. of air or about 4½ grams. Let us assume that this is equivalent to about 1 gram of oxygen. This oxygen would be enough to form a little over 1 gram of water or almost 30 times as much water as ten parts per million in the refrigerant.

Air Causes Problems

This immediately points up the serious effect of even a very small amount of air in the system.

Also, this 1 gram of oxygen can react to make three, four, or more grams of oxidized oil compounds or oil acids. Three or four grams of oxydized oil or resin arising at the expansion valve could plug it very easily and would constitute the sort of wax that is frequently found when such plugging occurs.

Effect of Oil

The presence of oil circulating with the refrigerant has an important effect on the relationship of refrigerant and water. How many times have there appeared in print solubility curves of water in "Freon"? Such data is of little practical importance because actually the solubility that counts is the solubility of water in Freon plus a little oil and this is quite a bit different from the solubility of water in pure Freon.

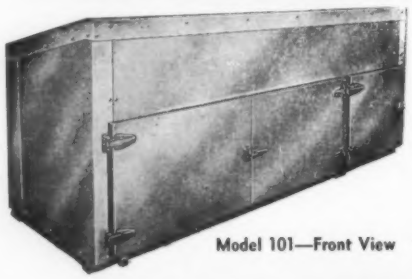
From a theoretical point of view the presence of oil means that the refrigerant carries less water than this equilibrium curve shows. Here again, however, we cannot be too theoretical because a reverse effect is also possible.

Presence of small amounts of oil acids or the metal salts of oil acids act as emulsifying agents. These make it possible for the circulating refrigerant to carry larger amounts of water than the curve usually shown. This emulsifying action is usually indi-

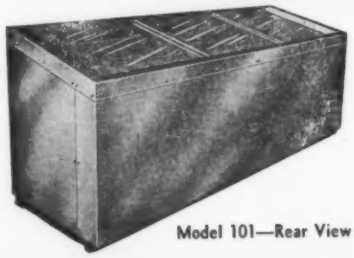
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FOR THE CHILRITE

FISHKEEPER • POULTRIKEEPER



Model 101—Front View



Model 101—Rear View

Here it is! Above and below freezing storage. A combination ice-maker, storage and display case for fish and sea food and poultry. Nothing like this has been offered before. Pays for itself by eliminating ice bills, and drying out and spoilage of fish and poultry. Proper humidity and temperature assured.

WRITE US TODAY!

MANUFACTURED BY:
Mountain State Mfg. Co., Inc.
Clarksburg, West Virginia

DISTRIBUTED BY:
Bortz Refrigeration Co., Inc.
4401 Penn Ave., Pittsburgh 24, Pa.

cated when refrigerant taken from a system shows a slight cloudiness.

Furthermore, the emulsifying agent itself is just as likely to be responsible for clogging of expansion valves as the water which it carries with it.

Many of you may recall removing a gummy substance from expansion valves or tubing, only to have it largely evaporate on standing in the open. The explanation of this is that the plugging is due to a mixture of water, emulsifying agent and refrigerant. When the latter evaporates, the emulsion breaks and very little of anything is left.

Air vs. Moisture

It should be apparent that the emphasis on water in refrigerating systems can be overdone. Actual tests, for example, show that it is possible in many cases to add water to refrigerating systems and have them go on operating for years without any trouble whatsoever.

On the other hand, presence of air in a system, causing the oxidation which has been discussed above, almost always causes plugging up of the expansion valve within a reasonable length of time.

The presence of oil and of oxygenated oil compounds in the circulating refrigerant markedly changes the effect of the action of solid absorbents. It is true that absorbents have greater affinity for water than for organic materials. However, they are selective among organic materials too, and things like organic acids, etc. are materials which can be picked up by silica gel for example.

Effect of Impurities

A recent article in Industrial Engineering Chemistry describes how hydrocarbons can be purified and separated by chromatic absorption on silica gel. This immediately makes apparent some of the problems which occur in refrigeration systems and explains why, under some conditions, adsorbents, which should clean up a system, have difficulty due to impurities.

The experienced refrigeration engineer will naturally regard with some doubt authorties who glibly talk about the difference between eight and ten parts per million of moisture in refrigeration systems.

The methods available today for measuring moisture content are becoming more sensitive. However, it should be noted that these methods are generally indirect and depend upon some indirect measurement to determine the water present.

These methods are very useful in cases where only a mixture of pure refrigerant and water is under consideration and the accuracy obtainable, under these circumstances, is all that the discoverers of the various test methods claim.

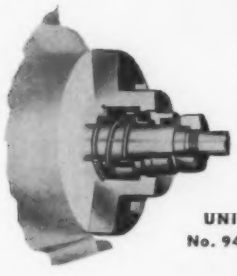
These test methods, however, are not successful in the presence of impurities such as alcohol, aldehydes, oil and oil breakdown products. Therefore, unfortunately, it is exceedingly difficult to withdraw a sample of refrigerant from an actual system and accurately measure its moisture content.

Added to the chemical problems are the mixing problems, since when such a sample is taken it is very difficult to make sure that water is not trapped or otherwise left in parts of the system.

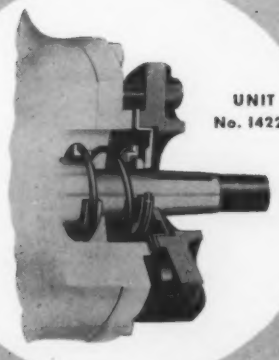
From the foregoing it should be apparent that solid dehydrating agents

ROTARY SEAL

"THE ORIGINAL, TIME TESTED, PRECISION BUILT REPLACEMENT UNITS"



UNIT No. 9444



UNIT No. 14222

Tested by time and proved by performance, ROTARY SEALS have won world wide recognition for their precision construction and uniform dependability. Our stock sheet lists more than 848 models available at leading jobbers. When you insist on ROTARY SEALS you insist on quality at its best.



See your jobber

THE ROTARY SEAL COMPANY
mechanical seals for rotating shafts

2020 NORTH LARRABEE ST. • CHICAGO, 14, ILLINOIS, U.S.A.
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New York 6, N. Y.

can be used effectively in refrigerating systems provided they are not expected to cope with large amounts of wax or sludge, and that air is rigidly excluded from such systems.

The oil used should be of a high grade with high initial stability and it, too, should be protected from oxidation by the rigid exclusion of air. The newer oils containing inhibitors are valuable for this service.

The use of a fluid dehydrant for the refrigerant has definite advantages in that it combines oxygen scavenging with elimination of moisture, and thereby acts as a further inhibitor against deterioration of the oil.

The purpose of this article has been to interpret some of the theoretical matter which has recently appeared in several refrigeration publications. The various points discussed should be of assistance to the refrigeration engineer in analyzing moisture and wax problems. Once a correct analysis has been made the actual remedies in troublesome systems will present themselves.

BUY FROM YOUR REFRIGERATION WHOLESALER

CENTRAL SUPPLY BUYS BUDLOCK BRANCH STORE

Acquisition of the Budlock Refrigeration Supply Co. branch store at 1625 S. Calhoun St., Fort Wayne, by Central Supply Co. of Indianapolis has been announced by John E. Loveland of Central's refrigeration division. The store will operate under the same management and staff but will be known as Central Supply Co. Charles Hill will continue as manager.

NORGE OPENS SALES OFFICE IN NEW YORK

The Norge division of Borg-Warner Corp. has established new sales offices in New York City at 55 W. 42nd St., it has been announced by H. L. Clary, general sales manager. The new offices will be under the direct supervision of R. H. Pizor, eastern regional sales manager.

FLA. SERVICE FIRM CHANGES HANDS

Kissimmee Refrigeration Service, Kissimmee, Fla., has changed hands and is now under the direct management of Geo. W. Trowbridge of St. Cloud, Fla., and is staffed by Charles Levine as refrigeration mechanic and L. E. Byrge of St. Cloud as sales representative and clerk.





Brand new addition to the line of electric household refrigerators manufactured by Coolerator Co. is this "King Size" model DR-88. Specifications of this new unit follow: overall exterior dimensions, height 61⅛ inches; width 31½ inches, depth 27⅛ inches; frozen food storage, 1.238 cu. ft.; regular storage, 7.3 cu. ft.; shelf area, 16.5 sq. ft.; ice cube capacity, 70 cubes; evaporator surface, 1703 sq in.; insulation, 3 inches of Pneupro Fiber; finish, high bake synthetic enamel; weight, 356 pounds.

SHORTER ORDERS . . .
Continued from page 35

access door on the side which opens right on to the work counter which runs across the front of the range. This sliding door puts the raw hamburger, pickles, and similar "makings" which are stored in this cabinet literally right at the fingertips of the fry cook where he can reach them without a single waste motion.

Larger quantities of these items are stored in the bottom half of the cabinet so that the service compartment can be replenished as required.

Further refrigeration facilities are provided in the back bar. These units, like most of the other equipment, were manufactured by Leitner Equipment Co. Unlike the custom tailored refrigeration facilities incorporated into the range assembly, however, these back bar units are for the most part standard Leitner units with certain modifications to fit the rigid requirements laid down by Johnson and Smith.

Refrigerated Back Bar

The entire base section of the back bar is made up of three separate refrigerated cabinets. The center unit, which has a flat counter-height top on which is located the restaurant's two coffee urns, is equipped with two front opening doors, while the two end units have three doors each.

The center unit is used for additional storage of meat, cheese, butter, and similar perishables. The two end units are utilized primarily for the storage of bottled beverages.

In addition to their three reach-in doors, these end units also are fitted with three top-opening lids each. These lids not only make the bottled goods available without the stooping necessary to reach the regular service doors, but they also are removable so that salad or sandwich pans can be inserted into the refrigerated areas should the changing menu requirements of the restaurant make such action advisable.

Two Temprite 22-W water cooling stations are provided, one immediately underneath each cash register on the inner service counter. Each of these units is capable of delivering 20 gallons of water per hour.

The entire restaurant is given a smart, clean, modern look by virtue of the fact that visible external surfaces of all equipment are of stainless steel construction.

Refrigeration for all of the restaurant's fixtures is provided by three Copeland water cooled condensing units, one of ¾-hp capacity and the other two of ½-hp capacity. These units are located in a 10 x 10 x 8-foot excavation beneath the restaurant's thick concrete floor. This location is cluttered with underground utility lines and is difficult to reach, but it provided the only feasible location for the refrigerating machines.

Units Cross-Connected

At the special insistence of Smith and Johnson all refrigerated fixtures are hooked up to these three units in such a way that if any one of the condensing units should break down the restaurant still would have at least some refrigeration for food, for bottled beverages, and for water, so that it could continue to operate, even if on a somewhat limited scale. This thoughtful provision minimizes the possibility of business loss in the event of failure of the refrigeration

The Premier
SELF ALIGNING VALVE GRINDING KIT



Makes it easy to grind, finish and test recessed or flush valve seats (piston or flapper jobs). Fast. No more tiresome hand lapping. Saves buying new parts.



"Couldn't Get Along Without It"
"Have used your kit for three months and do not see how I got along without it before. Saves me money and time waiting for replacement parts."
Appliance Service Co.
Greensburg, Pa.
SEE THIS REVOLUTIONARY NEW TOOL AT YOUR JOBBER
THE PREMIER CO.
891 Park Ave. Baltimore 1, Md.



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ON freezing tanks, the brine thermometer is a criterion of the freezing rate—a measure of production and efficient operation.

Design temperatures, to be accurately maintained must be accurately *indicated*. They must also be accurately *read*, often under adverse lighting conditions.

A century of experience in the building of AMERICAN Industrial Instruments is your assurance of permanent accuracy. The *red-reading mercury column*, which appears as a broad red highly visible stripe, reduces reading errors.

Specify AMERICAN for freezing tanks, condensers, cooling water, compressors and all refrigerating and cold storage plant services.

American Glass, Dial and Recording Thermometers are sold by leading distributors everywhere. Write to them or to us for information

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Makers of 'American' Industrial Instruments, Hancock Valves, Ashcroft Gauges, Consolidated Safety and Relief Valves. Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties.

YOU'LL FIND
Eston
REFRIGERANTS
ARE BETTER!



Distributors of
FREON 11-12-22-113

Years of use in all types of refrigeration equipment have proven Eston refrigerants are superior. All are of sustained high quality with exceptionally low moisture content. Servicemen say Eston refrigerants give better performance and more efficient operation. Eston jobbers are conveniently located. Write for complete information.

In the West it's Eston for Refrigerants

Eston
CHEMICALS, Inc.
3100 East 26th Street
Los Angeles 23, Calif.

equipment at any time.

Here is the way this "cross over" hook-up is arranged.

The special refrigerated drawers beneath the range and one of the bottled beverage units in the back bar are connected to one of the ½-hp condensing units. The center food compartment in the back bar and one of the drinking water stations are connected to the other ½-hp machine. The special food service section at the end of the range, the other bottled beverage compartment in the back bar, and the second water cooling station all are refrigerated by the ¾-hp condensing unit.

This arrangement provides for drinking water cooling on two of the condensing units, bottled beverage cooling on two of the units, and storage facilities for meat and other perishable foods on all three machines.

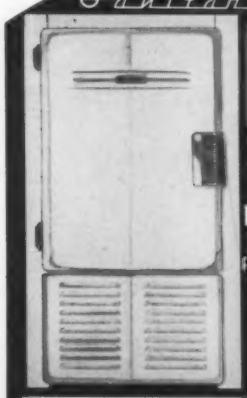
Incidentally, the restaurant also is air conditioned by a 5-ton Worthington packaged unit installed by Henry Niemes, Inc.

All in all, it sounds like a lot of refrigeration equipment for a little eating spot in which the actual serving area measures only 15 x 20 feet overall, doesn't it? But if you let on to Smith and Johnson that you're impressed by this display of cooling facilities they'll just tell you, in effect, that "you ain't seen nothin' yet!"

"Our experience with these two places," these enterprising restaurauteurs assert, "has taught us even more ways that we can profitably utilize refrigeration equipment when and if we open another eating establishment."

And no doubt there's a trick or two in their bag that many a commercial refrigeration dealer can use to good advantage in selling his next restaurant job.

Non Stop SATISFACTION
VIA Sanitary



TE45
ELECTRIC
TRAILER
REFRIGERATOR

SANITARY Electric Refrigerators for trailer homes and city apartments will operate efficiently, when built in because they are specially engineered. Equipped with nationally known condensing unit. Available in 4 and 6 cu. ft. net sizes at attractive prices. The market is all around you and it's ready for the harvest. Write for detailed information.

SANITARY REFRIGERATOR CO.
FOND DU LAC WISCONSIN

IMPROVEMENTS ADDED TO HOTPOINT UNITS

New refrigerator door-stop hinges and a compensated control as well as an accessory freezer alarm system are among the improvements now being incorporated in Hotpoint's 1948 line of refrigerators and freezers. The new hinges are constructed to prevent the door from opening more than 120 degrees.

A new type of compensated refrigerator control provides more uniform cabinet temperature regardless of fluctuations in room temperature. In the new light alarm system, available as an accessory for the EK-8 freezer, the light remains on as long as interior cabinet temperature is within safe limits.

CARRIER CONDUIT SYSTEM COOLS SINGAPORE BANK

Carrier Corp. has announced signing of a contract to air condition the new eight-story building of the Hong Kong & Shanghai Banking Corp., now being constructed on Orchard Road, Singapore.

A Carrier conduit "Weathermaster" system will be installed, the first conduit air conditioning installation outside the western hemisphere, the company stated.

The conduit system eliminates return ducts, and replaces the large rectangular supply ducts with small diameter conduits, requiring 75% less space. The conduit system also permits individual control of the temperature and humidity in each room.

Equipment providing 170 tons of refrigeration capacity will be used, including four reciprocating compressors.



No other gasket company maintains this policy . . .
that's why DEE-GEE and only DEE-GEE can say —
"We are suppliers and not competitors of our customers."

EXTRUDED METALS DIVISION

Extruded aluminum and brass alloys . . .
products fabricated from extrusions.

For genuine replacement parts—
see your authorized
factory dealer.

DETROIT GASKET & MANUFACTURING COMPANY

DETROIT 23, MICHIGAN



Over the COUNTER

Watch Your Profit Margin!

PART 2

Business periodicals have predicted 1948 profits will exceed profits in all previous years. This may prove to be the case with manufacturers and retailers, but not with refrigeration wholesalers.

These statements may seem amazing to some people who read this article. Nevertheless, they are based on sound facts that are easily proven.

The cost of manufacturing has increased, selling prices have been correspondingly increased, but the wholesaler's margins have remained substantially the same as before the war —and, in fact, in many instances actually have been lowered.

The wholesaler's position in the distribution picture places him squarely in the middle. He must pay the manufacturer his established price and resell merchandise at resale prices that are more or less closely controlled by active competition.

The refrigeration wholesaler has absolutely no control over this situation one way or the other. The only protection and chance for survival remaining open to the wholesaler is to go to bat as an individual in order to convince his suppliers that more profit is needed at this time if he—the wholesaler—is to succeed in weathering the storm.

Most manufacturers who are sources of supply to the wholesalers are sincerely interested in the success of the wholesaler. They will listen with interest to the wholesaler's problems when these problems are brought to their attention. Many manufacturers, loaded down with problems of their own, have not realized the serious financial problem confronting the wholesalers, a problem which calls for immediate consideration and relief.

Mr. Wholesaler, go to your suppliers and show them how your overhead has increased steadily for the past several years. Explain to them that costs of transportation on merchandise from their factories to your warehouse has doubled and more within the last two years. Point out how every item of operating expense has increased steadily.



"You're a new man, Burrows—and I think you ought to know that the boys won't be pleased that you have parts left over to take back to the shop!"

The gross profit has never been excessive; now it is entirely inadequate. Each and every wholesaler has this problem to meet. He must work individually toward an early correction of this serious situation.

BUY FROM YOUR REFRIGERATION WHOLESALER

REWA members offer you

7. Stockrooms containing hundreds of items and maintained at a large investment.
8. Adequate, up to the minute displays of merchandise which can be inspected at any time.
9. A business connection that does not compete with the trade by contracting for installation or service.
10. Sound, intelligent engineering advice which is always available when needed.
11. A business reputation backed by an organization of 13 years' operation according to approved business policies.
12. Every assistance to enable you to expand your business through prompt, efficient service.

7

Think of the investment which would be required to carry only one of the hundreds of items shown in a Refrigeration Wholesaler's catalog. Then bear in mind that he stocks all of these items in quantity for your demand today, tomorrow or six months from now.

180 MEMBERS MAINTAINING OVER 300 CONVENIENT OUTLETS

BUY FROM A REWA MEMBER

H. S. McCloud, Executive Secretary

920 East McMillan St., Cincinnati 6, Ohio

"WAGNER STORY" TOLD IN SPECIAL HOUSE ORGAN

"This Is Wagner", a special edition of Wagner Electric Corp.'s house organ *Wagner Circle*, tells the story of the company as it is today, following the most successful year in its 57 year history. With an introduction by the company's president, P. B. Postlethwaite, the booklet contains selected illustrations of Wagner people, plants and products, with copy that has as its theme the proposition that the growth and success of any enterprise are determined by the service it renders.

The 20-page, two-color booklet has been distributed to Wagner stockholders, customers and suppliers.

REFRIGERATION BOOSTS PHILCO'S '48 SALES

With the refrigeration division assuming greater importance than ever before in the company's history, total sales of Philco in the second quarter of 1948 amounted to $65,956,000, as compared with $58,661,000 in the first quarter of 1948 and $57,754,000 in the second quarter last year.

Sales in the first half of 1948 totaled $124,617,000 as compared with $107,941,000 last year, an increase of 16%.

STEEL MEN TO LEARN OF CRANE CAB COOLING

"Air Conditioning of Crane Cabs" will be the subject of an address before the convention of the Association of Iron and Steel Engineers, to be held Sept. 28-Oct. 1, in Cleveland, Ohio.

The topic will be discussed by R. D. Darrah, sales supervisor, crane cab air conditioning, Dravo Corp., Pittsburgh, Pa., and is scheduled for the convention's morning session on Sept. 28.

COPELAND EARNINGS UP

Bolstered by third quarter earnings moderately above those of the corresponding 1946-47 fiscal period, net income of Copeland Refrigeration Corp. for the nine months ended June 30 amounted to $452,169, equal to 75 cents a share on 600,000 outstanding common shares, contrasted with $482,022, or 80 cents a share, in the like nine months of the preceding fiscal year.

Net sales of Copeland products, compressor and condenser units, household refrigerators and water coolers, were at a record high for the nine months at $9,853,112, up more than 25% from the previous peak volume—$7,826,724—shown in the corresponding period a year ago.



Designed by refrigeration engineers to meet refrigeration equipment handling problems, a new low-cost apparatus known as the "Liftruk" has been developed by Perfecold of Los Angeles, West Coast commercial refrigeration firm. In this photo a shipping clerk demonstrates this new unit, which introduces an easy, trouble-free method of moving bulky cargo in shipping rooms, warehouses, factories, terminals, display rooms, and in the field. The Liftruk completely eliminates the hydraulic principle of lifting, and permits the rapid movement of cargo in and out of tight places without adjusting the load. It requires no fluids, no recharging, and no maintenance. Consisting of two trucks weighing 48 pounds each, the Liftruk set has a recommended capacity of 2500 pounds, and is designed so that one man can move capacity loads.

MAGIC IN A SMALL BOTTLE

FREEZE-UPS ELIMINATED RIGHT AWAY!





ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems . . . The dependable liquid anti-freeze.

"ONE SERVICE MAN TELLS ANOTHER - IT'S GREAT"

ORDER FROM YOUR JOBBER OR—

EXCLUSIVE NATIONAL DISTRIBUTOR
THE HARRY ALTER CO. 1728 S. MICHIGAN AVE. CHICAGO 16, ILLINOIS
JOBBERS: WRITE FOR SPECIAL PROPOSITION!

SHANK VALVES

SOLVE MAINTENANCE PROBLEMS



All-Steel GAUGE SETS

All-Steel construction. Automatic shut off of liquid in case of glass breakage. Composition packing rings give long life, no-leak seal.

Semi-Steel SHUT-OFF VALVES

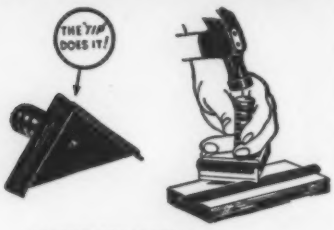


Highest grade non-porous metal — full size ports — clean cut threads. Double seated stem—Shank design base — perfect alignment. Long life packing ring.

See your jobber or write for prices.

CYRUS SHANK CO.
631 W. Jackson Blvd., Chicago 6, Ill.

JARROW DOOR GASKET NOTCHER



MAKES PERFECTLY METERED CORNERS

The protruded rounded tip of a Jarrow Door Gasket Notcher takes out the precise amount of rubber necessary to form a perfect non-bulging gasket corner that will not leak air. Easy to use —merely place tool on gasket, strike it with a hammer and a perfectly cut gasket results. Blade may be easily removed for replacement or resharpening. Save time and money by ordering one from your wholesaler.

ONLY $4.98

JARROW PRODUCTS
420 W. LA SALLE ST., CHICAGO 10, ILLINOIS

COMMERCIAL SALES . . .

Continued from page 43

of the state attending food preparation demonstrations and viewing the freezer displays, furnished sufficient proof that such joint promotional and educational activities are needed at this time, Groom pointed out.

Groom dealers were urged to publicize and support the Iowa Food Freezing Fair in every way possible in advance and during the show. The Groom organization, through bulletins and in other ways, supplied them with ammunition they could use to develop consumer attendance and interest in the project, which was supported by 20 freezer manufacturers, home economists, the Iowa Power & Light Co., the Iowa Frozen Food Locker Association, and others.

Wilson retailers in Iowa distributed complimentary tickets for the demonstrations conducted by nationally known home economists and stressed the Food Freezing Fair in advertising, window displays, radio spot announcements, window banners and in other ways.

CITY LAW REGULATES FOOD STORAGE

The city council of Caspar, Wyo. has passed a sanitation ordinance requiring all readily perishable food and drink in public eating places, or in places where food is prepared for human consumption, to be kept in a refrigerated compartment at 50 F or below, except when being prepared or served.

This ordinance also requires that waste water from refrigeration equipment shall be properly disposed of.

Other provisions of the new law require all refrigeration equipment and other food handling equipment to be so constructed as to be easily cleaned, and to be kept in good repair. All refrigeration equipment must be kept clean and free from dust, dirt, insects, and other contaminating material.

7 NEW REPRESENTATIVES NAMED BY BEN-HUR

Ben-Hur Mfg. Co., Milwaukee manufacturer of farm and home freezers, has announced the appointment of seven new district sales representatives.

Ralph K. Zickert will work with Ben-Hur distributors and dealers in Wisconsin, Illinois, Minnesota, and North Dakota, with headquarters in Milwaukee.

Richard P. Busch, formerly of the Milwaukee staff, has been moved to York, Pa., from where he will travel through Pennsylvania, the New England states, New York, and Washington, D. C.

William P. Stone, from headquarters in Cincinnati, will represent Ben-Hur in Ohio, Indiana, and Kentucky.

Russell L. Wirick, of Memphis, Tenn., will be responsible for the states of Tennessee, Arkansas, Missouri, Louisiana, and Mississippi.

Ben-Hur will be represented in the state of Texas by Morgan H. Cobb, making his headquarters in Fort Worth.

C. Kelley Bogle, Marietta, Ga., will be in charge of operations in that state.

NAMED DISTRICT MGR.

James Reynolds Carey has been appointed district sales manager of the Atlanta district for Deepfreeze division, Motor Products Corp. He was formerly associated with a large distributor in Tennessee.

Laykold Cement

REG. U. S. PAT. OFF.

A NEW PRODUCT

HOLDS CORK *Instantly*

Trowel on cold — place immediately — cork stays put. After a few hours curing, cork holds a pull of hundreds of pounds.

Holds cork to wood, concrete or cork. Saves *labor*—ideal for new jobs and for insulation patching.

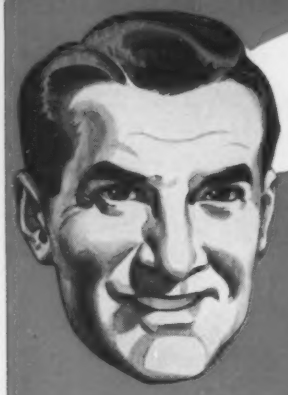
Developed by the makers of — Laykold Insulation Adhesive, Weathercoat and Hydropel.

Ask our nearest office for details and a demonstration.

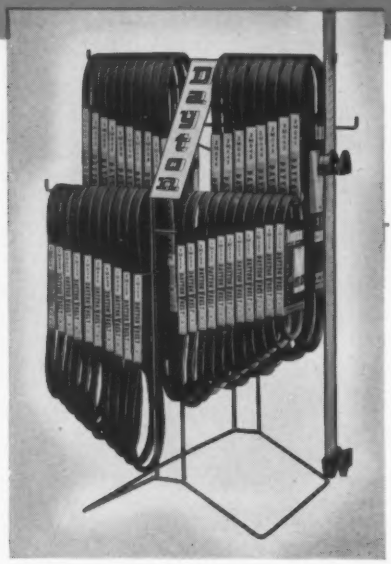


AMERICAN BITUMULS COMPANY

BALTIMORE 3, MD. · E. PROVIDENCE 14, R. I. · PERTH AMBOY, N. J. · COLUMBUS 15, OHIO · 200 BUSH STREET • SAN FRANCISCO 4, CALIF. · WASHINGTON 6, D. C. · BATON ROUGE 2, LA. · ST. LOUIS 17, MO. · OAKLAND 1, CALIF. · TUCSON, ARIZ. · SAN JUAN 23, P. R. · LOS ANGELES (INGLEWOOD), CALIF.



You'll make MORE SALES with DAYTON FHP V-BELT SALESMAKERS !



SENIOR SALESMAKER

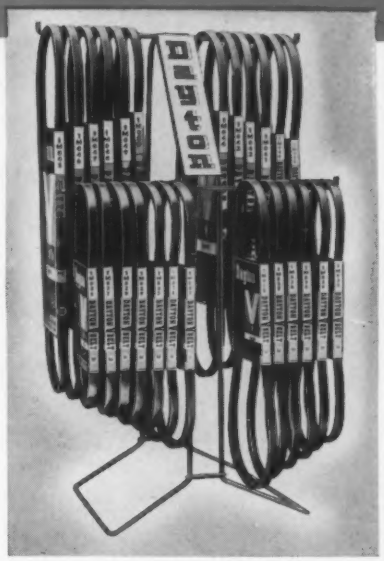
With 39 fastest selling Dayton FHP Belts brings big dealer profits.

Dayton V-Belts are used on millions of refrigerators, washing machines, pumps, compressors and all types of fractional horsepower motors.

JUNIOR SALESMAKER

With 25 fastest selling Dayton FHP Belts brings a good profit on small investment.

Popular Dayton V-Belts are available for all small machinery use. Recognized as a quality product the moment they're displayed—they move fast.



Painted in bright attractive colors, Dayton Salesmakers are compact, eye-catching units specially designed to attractively display the entire assortment of nationally advertised Dayton fractional horsepower V-Belts. These easy-to-erect displays are arranged so customers can easily select the size V-Belt they need . . . all you do is ring up the sale. Included in each assortment of fast-selling, quality Dayton V-Belts are up-to-the-minute merchandising aids designed to label you headquarters for DAYTON—the recognized name in V-Belts. Known from coast to coast, Dayton is the only V-Belt built with Raytex Fortified Cords—specially processed Dayton rayon—for maximum pulling power and longest life. Don't wait! Tie in now with Dayton. Remember, with Dayton, you get complete selling tools designed to get you more V-Belt sales. You'll make sales faster, more profitably with the Dayton line. Write *today: Dayton Rubber, Dayton, Ohio*

MAXIMUM COVERAGE SALESMAKER

178 belts . . . 122 sizes. Designed to service 99% of your V-Belt customers. This is the ideal assortment for the larger dealers with a steady traffic flow.



Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER





TURNER

DOUBLE JET 92-A BLOW TORCH

Used for years in laboratories and industrial applications where precision work is a "must". Now acclaimed by electricians, plumbers, and other artisans who appreciate a time-saving device that improves workmanship. Ideal for sweating copper and fusing or brazing other metals. Exclusive Double Jet Burner produces a pencil-point flame within a flame registering 2300°. Idling flame keeps torch fully generated for instant use . . . desirable for intermittent work. Objectionable noise is eliminated. Available in one-pint and one-quart capacities; tank is seamless high-polished brass; bottom fill; burns gasoline.

SEE YOUR WHOLESALER

THE TURNER BRASS WORKS

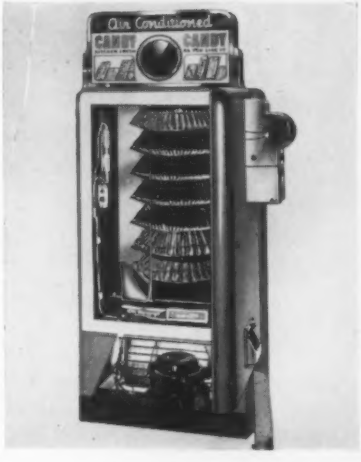
SYCAMORE ILLINOIS

Since 1871

Refrigerated Vending Machines Sell Wide Range of Products



A nickel in the slot of this new vending machine provides you with a 5-ounce cup of canned citrus juice in 5 seconds. Twenty-nine 46-ounce cans of juice are contained in an electrically operated rack which is cooled to 40 F. After can has been opened, juice is aerated in a sealed stainless steel chamber until served. This "Dispensolator" is being distributed by Snively Vending Sales Co., Winter Haven, Fla.



This new "air conditioned" candy vendor introduced by United States Vending Corp. of Chicago offers automatic 1-second delivery of the bar selected. Capacity is 425 bars of seven different varieties. Constant temperature is maintained to insure "kitchen fresh" candy at all times of the year, regardless of climate. Illuminated display adds to the unit's merchandising appeal. National distribution is planned.



Push-button ice cream merchandising is provided by this "Ice Cream O'Mat" announced by Frosted Food O'Mat, Inc. of Calif. At a touch of one of the six buttons an electrically controlled mechanism delivers a package of the selected flavor directly to the cutomer. Complete turnover of stock is assured, and automatic defrosting is provided. The unit combines effective display with ease of merchandising.

INTRODUCING THE *Refrigerette* by ROZETT

With the Conveniences of a LARGE REFRIGERATOR in a Table Top Model



ONLY 34¼" HIGH, PORCELAIN WORK-TOP

This unit was designed to fit a *definite need, particularly where space is at a premium.*

Although the REFRIGERETTE is only 34¼" high, it will hold approximately 85 lbs. of foodstuffs. It contains two shelves and one cutaway, permitting storage for milk and other tall bottles. Approximately 6 lbs. of ice cubes are produced at one time by the chilling unit. Frozen food packages or meat can be stored for long periods in the ice tray compartment if trays are removed.

DESIGNED AND CONSTRUCTED FOR A LIFETIME OF SERVICE

Table high, the REFRIGERETTE matches standard kitchen equipment, and provides a sturdy and sanitary work top.

The REFRIGERETTE

Ideal for

- STUDIO
- TRAILER
- FIELD OFFICE
- RECREATION ROOM
- PROFESSIONAL OFFICE
- LABORATORY
- KITCHENETTE

These features insure SATISFACTION

✓ **GLISTENING WHITE PORCELAIN TOP**
IS STAINPROOF, SANITARY AND EASILY CLEANED

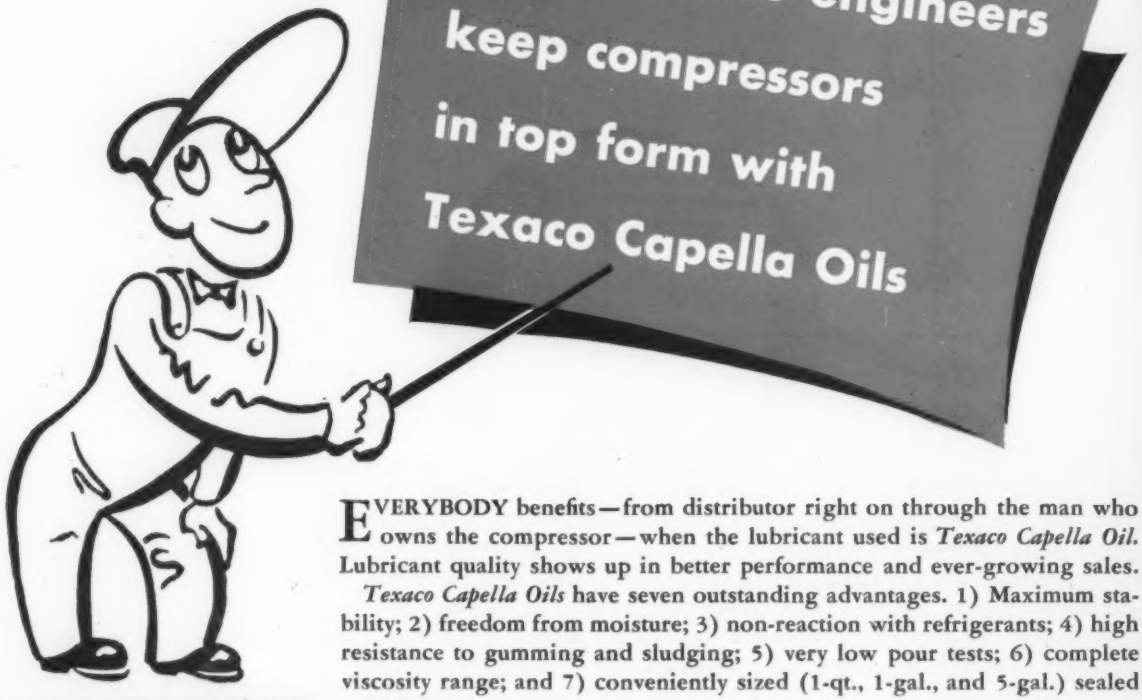
✓ **HEAVY BAKED PORCELAIN INTERIOR** FEATURES THE MUCH IN DEMAND CORNERS THAT ARE SO EASY TO USE

✓ **HERMETICALLY SEALED POWER PLANT**
REQUIRES NO ATTENTION. FULLY WARRANTED BY THE MANUFACTURER

I. R. ROZETT & ASSOCIATES

MERCHANDISE MART CHICAGO 54 ILLINOIS

Business grows for all



EVERYBODY benefits—from distributor right on through the man who owns the compressor—when the lubricant used is *Texaco Capella Oil.* Lubricant quality shows up in better performance and ever-growing sales.

Texaco Capella Oils have seven outstanding advantages. 1) Maximum stability; 2) freedom from moisture; 3) non-reaction with refrigerants; 4) high resistance to gumming and sludging; 5) very low pour tests; 6) complete viscosity range; and 7) conveniently sized (1-qt., 1-gal., and 5-gal.) sealed containers.

Whether the compressor is used for air conditioning or refrigeration . . . whatever its type or size . . . *Texaco Capella Oils* are made to keep it clean, efficient, economical. *Texaco Capella Oils* are fully approved by leading compressor manufacturers.

Let *Texaco Capella Oils* help make your business grow. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

FREE LUBRICATION GUIDE. New edition. Lists make and type of compressor and refrigerants in 64 Electric Refrigerating Units and 39 Air Conditioning Units. Shows recommended grade of *Texaco Capella Oil* for each. Use Guide as a wall chart, or bind into service manual.



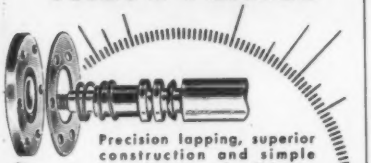
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Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.

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P. O. Box 794, Denver, Colo.

THE PRACTICAL Refrigeration Engineering MANUAL

... by Harold Smith

XXV. Central Station Air Conditioning Systems

DURING the last twelve to fifteen years, thousands of heating systems have been installed, using the forced air principle of heat distribution.

Whether the fuel used is coal, oil or gas, the circulation of the heated air is almost identical. Circulating fans installed in the system force the heated air to all rooms in the house. Cold air return lines suck the cold air in each room back to the furnace for heating and re-circulation to the rooms.

This type of a heating system is very efficient and also provides much of the equipment needed to provide summer air conditioning in the house. With a fan to circulate the air, filters to clean the air, and supply and return ducts leading to each room, the general layout is set up.

COOL ROOMS ALTERNATELY

To add summer air conditioning to such an installation it is necessary to install an air conditioning coil of proper capacity in the return air duct, usually at a place in the duct just before the air is pulled through the fan.

In very few instances is it advisable to attempt an installation large enough to air condition the entire house at one time. This can, of course, be done, but usually neestaic tesasnee ETAOIN ually necessitates an excessive initial investment in equipment and a very high operating cost to keep this equipment in operation.

Plan the installation to cool the living room, dining room, library, music room, kitchen, den, etc. during the day time and the sleeping rooms at night. Such planning should cut the refrigeration requirements about in half, greatly reducing both initial investment in equipment, and, subsequently, the operating expense. This is a practical way to handle this situation, greatly reducing buyer resistance as the amount of money involved is considerably less.

REGISTERS PROVIDE CONTROL

Control of the rooms to be cooled is handled by opening or closing the registers in the different rooms so that the cooling effect is limited to the living zone day and night. Thermostats must be provided to control the operating cycles.

A condensing unit of the proper capacity must be set up and installed as close as possible to the air conditioning coil located in the return air duct. Usually a 3 to 5-hp condensing unit will handle the home installation divided for day and night cooling requirements as outlined above.

As these units use water cooled condensers, it frequently is advisable to sell the customer on the advantages of using an evaporative condenser, thus practically eliminating the expense of water for condensing purposes.

In air conditioning it is generally assumed that water consumption approximates 100 gallons per hour per horse power or ton of air conditioning used. On this basis a 3-ton unit would use approximately 300 gallons of

RANCO ANNOUNCES NEW POWER ELEMENT

A completely new beryllium copper power element featuring greater sensitivity and positive action, has been announced by Ranco, Inc.

Production of the beryllium copper power element is handled entirely in the Ranco plant, where complete control of materials, assembly, and testing insures precision craftsmanship. The unit has been thoroughly tested in thousands of installations in precision instruments manufactured precision instruments.

CARRIER SALES UP

During the 12 months ended April 30, 1948, Carrier Corp. completed contracts and sales of $55,050,376 as compared with $37,450,297 in the previous similar period. New orders booked totaled $46,139,159 as against $46,120,124 for the preceding 12 months.

Net profit for the period was $2,349,697 after provision for taxes, certain non-recurring expenses and a reserve for contingencies. This compares with $1,570,336 for the 12 months ended April 30, 1947.

water per hour and a 5-ton unit would use 500 gallons per hour. This can result in a very sizable water bill with a system running 16 to 18 hours per day using water direct.

The evaporative condenser practically eliminates this huge water consumption and expense. The water carried in the reservoir is used over and over again with approximately a 10% loss of water due to evaporation. This volume means little. In fact, it is almost impossible to identify this consumption on the average water bill.

Many cities are passing ordinances prohibiting the use of direct supply water for air conditioning installations. Such ordinances are considered necessary because of the large consumption of water involved when used directly through the system. Most city reservoirs and pumping facilities are inadequate to handle this additional load and most storm sewers are entirely inadequate to handle the volume of waste water when water is used directly through the system.

EVAPORATIVE CONDENSER AIDS USER AND DEALER

The sale of an evaporative condenser is therefore fully justified, and adds considerably to the sale price of the equipment. On the other hand, this added piece of equipment pays for itself quickly through savings in the operating cost. With the summer air conditioning equipment installed in the heating system, the householder has acquired 100% air conditioning equipment for both summer and winter and is in a position to enjoy a comfortable condition at any time.

This type of installation is ideal and usually is superior to any type of room cooler installation. However, it is only available to the home owner who has had a complete duct supply and return system built into the house. Any attempt to install a duct system after the house was built would prove very expensive, and also would necessitate having exposed ducts running through open rooms, thus spoiling the appearance of the home.

ROOM TYPE UNITS PRECLUDE DUCT WORK

To overcome the problem of installing open duct work in homes not equipped with built-in duct work, some manufacturers make a room type unit, which is set in the room to be cooled.

These units are approximately the size of a heating register used with hot water or steam heating systems. They are of pleasing design and finish, to fit in with the furnishings in nice homes.

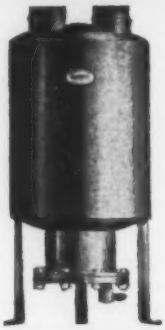
Such units include cooling coil, fan, thermostat, expansion valve, and provision for the drainage of the condensate. Several of these units may be placed in different rooms throughout the house and operated with a single condensing unit, installed in the basement, utility room, or other convenient location.

By installing individual liquid lines to each room unit, with a solenoid valve installed in each liquid line and connected to the thermostat on the room unit, each unit may be operated entirely independently of the others.

An installation of this kind must be made with great care and careful planning, to guard against future problems and dissatisfaction. The tubing and drain lines must be insulated with a good grade of insulation material to eliminate condensing moisture forming on the lines and damaging the floors, walls, or furnishings.

(To be continued)

AMINCO
OIL SEPARATORS



Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from ⅛ H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Full descriptive bulletins on request.

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Export Borg-Warner, 310 So. Mich., Chicago

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PERFECTION REFRIGERATION PARTS

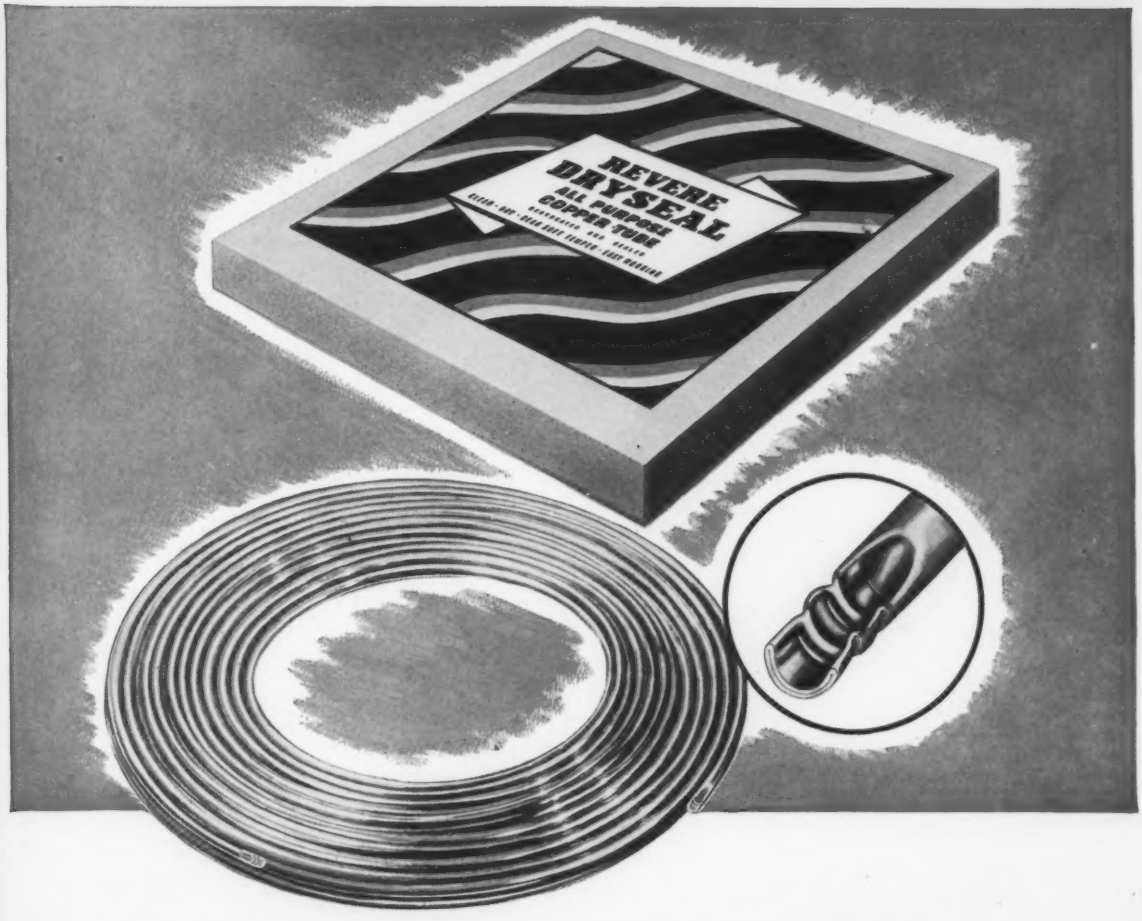
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IS THE TUBE YOU'VE ASKED FOR!



EVERY feature you want in copper refrigeration tube, you get in Revere Dryseal. You have asked for a tube that is dead soft, so that you can bend it easily: *that's Revere Dryseal.* You have asked for a dependable end seal that permanently protects the clean, bone dry interior and that will pass through any opening large enough for the tube itself: *that's Revere Dryseal.* You have asked for new, more economical dimensional standards: *that's Revere Dryseal.* You have asked for a package that protects the tube, keeps it bright and clean, and is readily identifiable in stock: *that's Revere Dryseal.*

Look for the new red and blue Revere Dryseal package whenever you buy refrigeration tube. This tube comes in sizes from ⅛″ to ¾″ O.D. and is packed two 50-foot coils to a package.

Ask your Revere Distributor for all the *new* facts on the *new* Dryseal—the easy-to-bend copper refrigeration tube that assures you of fine quality in every length you buy!

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L E A D E R S H I P



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Specialists in Refrigeration
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Greater Customer Satisfaction
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LOOK TO THE LEADER for the satisfactory performance and trouble-free service that pleases your customers and increases your profits. And look to Ranco, too, for the design developments that insure that performance and service. Every Ranco Refrigeration Control, for example, has the new and exclusive Ranco beryllium copper power element, designed and produced by Ranco refrigeration specialists, tested in thousands of wartime precision instruments and in over 2,000,000 refrigeration controls.

The maximum sensitivity and positive action of this new power element provides temperature accuracy within new lower limits. Precision built of the finest materials, each joint in this element is silver soldered, an operation typical of the sound design and skilled craftsmanship that marks every Ranco product. It pays to check with the leader first.

Ranco Inc.
COLUMBUS 1, OHIO

World's Largest Manufacturers of REFRIGERATION CONTROLS

Here's how

Edited by
Warren W. Farr

Know Thy Neighbor— He Might Be a Prospect!

Are you ignoring the newcomer to your market-community? If you are, you are passing up sale after sale . . . and the profits that would go with them.

Recently a friend of ours moved to a new city. Within three blocks of his new home are three refrigerator and major appliance dealers. *Not one of them* has called on this newcomer, yet since moving he has purchased $350 worth of appliances and still is in the market for several more items.

Quite often when families move they sell their old appliances and buy new ones. This provides a golden opportunity for the appliance dealer who really is on his toes. Here is a tailor-made market where the demand already has been created; all the dealer has to do is handle the problem of supply.

Information on newcomers to your community or your market area is available from many sources. If it is to be effective, this information should be obtained as early as possible—preferably even before the newcomer moves in.

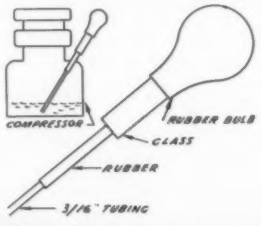
Property sales records or leasing agents provide an important source of this early-bird information. Another possible source is your local Chamber of Commerce or Credit Bureau. To capitalize on it to the fullest extent, dealers should promptly dispatch letters to the vacated addresses and thus arrange immediate contact with the newcomers who move into the vacated premises.

WANT TO EARN $5?



You don't have to be a writer or a literary genius! Just dot down some of the shortcuts you've developed in your maintenance or installation work and send them to HERE'S HOW EDITOR, REFRIGERATION INDUSTRY. Your $5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

I do it this way...



HERE is how I remove excess oil from the crankcase of a compressor. This device also can be used for removing brine or oil from the evaporator after removing the float.

All that is necessary is to obtain a car battery hydrometer. Remove the insert and replace it with a piece of 3/16-inch copper tubing leading into a section of rubber tubing which is used as an extension. Then simply insert the rubber tubing into the unit to be drained and remove the liquid by alternately squeezing and releasing the rubber bulb of the hydrometer.

Caution: Be sure this tool is kept clean and dry, otherwise it may introduce dirt or moisture into the system which you are servicing.

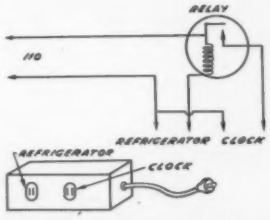
J. Coffey, Bayonne, N.J.

Question and Answer

Question:—If a drier is placed on a low side and has absorbed a maximum amount of moisture at low temperature, will the moisture leave the drier after the machine was shut down and the unit allowed to warm up to room temperature?

Answer:—It is true that a small amount of the moisture might leave the drier under these conditions, but the amount would be negligible.

I do it this way...



HERE'S a simple device that any serviceman can make up in a few minutes that will save considerable work when checking the running time of a refrigerator by using a self-starting electric clock.

Instead of going to the trouble of connecting the clock directly across the motor leads, this device will enable you to do the whole job right at the wall outlet.

Just plug in the relay unit to the wall outlet and then plug the refrigerator and clock into the relay unit, as shown in the diagram. When you come back to check the job you'll have an accurate record the running time for the period you were gone. The relay used is the type that closes on approximately one ampere a.c. with a small voltage drop of 5 volts or less.

J. C. and C. B. Schuder, Sumner, Illinois

Keep Your Credit in Hand

Credit, it has been said, can make or break a business, depending on how it is administered. With wartime savings of most customers now depleted, many merchandising and service organizations are experiencing a greater number of requests for credit privileges than they had a year ago.

This fact brings up two important questions—namely how much credit can be extended without hurting your business, and how collections of delinquent accounts should be handled.

Extending credit and getting people to pay bills is sometimes a ticklish business. Credit losses, however, need not be great if judgment is used in extending credit, and if dealers are firm and regular in their collection methods.

The methods used to make collections can either build or destroy the good will upon which a business is founded. Here are some general suggestions regarding collections.

1. Never use printed forms or slips. Wherever possible, have each letter personally typewritten. The returns are always greater.

2. Enclose a self-addressed envelope to make the paying job just a little easier for the delinquent.

3. Be systematic about collections. Don't leave your collection work for a slack season when business is slow—or until your credit accounts get so low you have to come down to the office nights to straighten them out. If a customer thinks you're slow in collecting, more often than not he'll be slow in paying.

4. The dollars which your customers are using represent a sizeable portion of your profit. They can never be profit until you collect them and put them safely into your bank account.

It is admittedly not good business to have your loss on bad debts either too low or too high. There should be a happy medium. Usually a 2% loss on bad debts is not considered too high. On the other hand, a dealer who keeps his bad debts at too low a point usually is not doing enough "venture" business and is thereby cutting down his volume.

Although your installment accounts demand your constant attention, credit is one challenge any careful dealer can master.

What Does A Discount Cost in Volume?

Have you ever figured out what you must do to regain the profit you sacrifice when you cut prices either to meet competition or to attract trade?

Suppose you want a gross profit of 25% on your selling price. If you cut your price 2% you will have to increase your sales volume 8.7% on that item to make the same gross profit.

A 3% cut requires a 13.6% increase in sales.

A 5% cut requires a 25% increase in sales.

A 7.5% cut requires a 40.9% increase in sales.

A 10% cut requires a 67% increase in sales.

A 15% cut requires a 150% increase in sales.

A 20% cut requires a 400% increase in sales.

Modern Equipment in
Modern Refrigerators!

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SENSATIONAL, FLEXIBLE,
INDESTRUCTIBLE

For The First Time . . .
ICE CUBES WITHOUT A STRUGGLE!



the *handiest, most serviceable*
ice cube tray ever made!

Removes ONE—TWO—or ANY NUMBER of cubes, *instantly*,
by a simple twist of the wrist!
Eliminates for all time the nuisance of running water,
wet hands, half melted cubes.
No chopping—No tugging—No banging—
No frosting or freezing to refrigerator.

Now Famous From Coast to Coast—
Sold by More Than 7000 Dealers

3 STANDARD SIZES:

16 *cube* Roto-Tray
11"x4⅛"x1½" $1.69

12 *cube* Junior
9"x3⅞"x1½" $1.39

8 *cube* Single
10½"x2"x1½" $0.95

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BUY FROM YOUR REFRIGERATION WHOLESALER

OPPORTUNITIES

Classified Advertising Section

Rates: for "Positions Wanted", $3.50 minimum, limit 25 words. For all other classifications, $4.00 minimum for 25 words, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box addresses count as five words.

HELP WANTED

Commercial Refrigeration Serviceman, for aggressive sales and service company located in Northern Ohio. Experience in commercial and air conditioning. Union wages. Box No. 8148, The Refrigeration Industry.

POSITIONS WANTED

Selected group of men, graduates of well-known trade school, desire employment in Refrigeration Field. Will travel anywhere. Qualified in domestic and commercial refrigeration. Reliable. Contact Placement Dept., Eastern Technical School, 888 Purchase Street, New Bedford, Mass.

BUSINESS OPPORTUNITIES

FOR SALE—(in TEXAS)—A refrigeration business large enough for four service men, have two service trucks, a lot of equipment on hand with eleven county dealership, commercial and domestic sales and service, as I have to go to the hospital for a long stay, will sell all for $9500.00; long lease on building, low rent. Write in care of Box 9248, Refrigeration Industry.

Refrigeration Manufacturing Plant available for immediate purchase at inventory value. Now manufacturing Commercial Freezers. Thirteen thousand square feet floor space. Excellent facilities for shipping by truck or two railroads. Good labor market. Write or call Jenks, 460 Woodland Ave., Wadsworth, Ohio. Phone 4667.

FOR SALE

Stop Terminal Leaks in Crosley Sealed Units by using the Jiffy Terminal. Easy to install, no special tools needed, can be installed in a few minutes without removing unit from cabinet. Set of three terminals, $4.00 or see your jobber. Detroit-Sealed-In Parts Co., 19191 Rogge, Detroit 12, Michigan.

FOR SALE—Air-cooled and Water-cooled remanufactured condensing units, ¼ up to 2 HP. Write for particulars, Edison Cooling Corp., 310 East 149 St., Bronx 51, N. Y.

SEALED CROSLEY TERMINALS. Installed from the outside in a few minutes without opening the compressor or removing unit. No special tools needed. Stops leaky terminals on F-12 units. Part no. 1020 short model—for short Crosley terminals (F-12 compressors with 4 mounting legs). Part no. 1020 long model—for long Crosley terminals (F-12 compressors with 3 mounting legs). $5.25 set of three. Immediate delivery. Money-back guarantee SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

FOR SALE

FOR SALE—50 MACHINES
2 TON "TEMPRITE" REFRIGERATION MACHINES
NEW—in original crate
purchased from Government
$250.00 each
SEND FOR PHOTOGRAPH & DESCRIPTION
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G-E JUGGLES DUTIES OF TEN EXECUTIVES

In a move to attain greater operating efficiency and flexibility through better coordination of certain functions, the General Electric Co.'s appliance and merchandise department has announced changes in the titles and responsibilities of 10 men.

Carl M. Lynge, formerly manager of manufacturing, has been appointed manager of employee and community relations for both the appliance and merchandise department and the newly formed construction materials department.

J. W. McNairy has been named manager of engineering and manufacturing for the appliance and merchandise department. He was formerly manager of the engineering and planning division.

A. M. Sweeney, formerly manager of appliance sales, has been assigned the post of general sales manager, while Charles W. Theleen, assistant manager of appliance sales, has become manager of sales.

George B. Park, who was previously public relations manager, has succeeded Arthur L. Scaife as advertising manager. Mr. Scaife becomes manager of merchandising.

Albert J. Brock, formerly assistant manager of construction materials sales, has been appointed manager of sales services of the appliance and merchandising department. In this position he will be responsible for the operations of the General Electric Consumers Institute and Home Bureau and of the retail development and sales service sections.

Dorcey F. Hines, formerly sales specialist, has been named manager of special accounts, in which capacity he will have charge of the farm sales and department store sales sections.

George E. Mullin, Jr., and George D. Kobick have been appointed home freezer sales manager and manager of apartment house sales, respectively, for the household refrigerator division. Mr. Mullin was formerly manager of farm sales for the appliance and construction materials sales service divisions. Mr. Kobick, in his new capacity, will continue as in the past to coordinate apartment house sales for all interested appliance divisions.

NEW RSES GROUP FORMED IN DETROIT

A newly organized Detroit chapter of Refrigeration Service Engineers Society, which has applied for a charter from national RSES headquarters, has as temporary officers:

Ed Kellie, president; Jack M. Baragar, first vice president; Elmer Pugh, second vice president; Earl Jennings, secretary; John C. Bell, treasurer; Charles Earl, educational chairman.

REGIONAL SALES HEAD

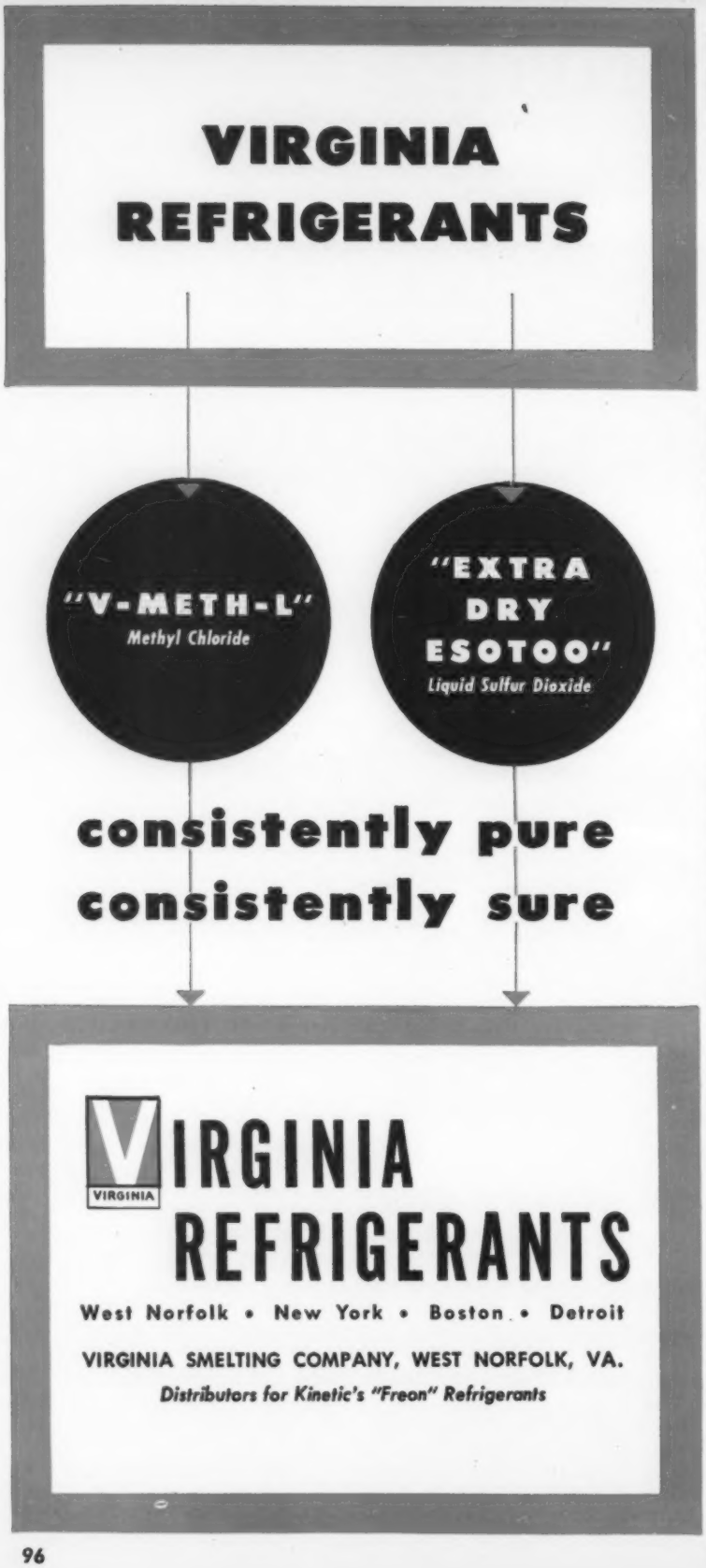
Joseph W. Doan, former manager of the appliance section of Broadway Stores in Los Angeles, has been appointed appliance sales manager of the Pacific Region for Frigidaire.

VET HOSPITALS GET AIR CONDITIONING

Minneapolis-Honeywell Regulator Co.'s automatic temperature controls will go into two-thirds of the hospitals now under construction in the Veterans Administration's multi-million dollar building program, Bern C. Benson, hospital controls division manager, has announced.

Use of the automatic temperature controls in the hospitals is receiving a big impetus through the VA program, Benson said. Air conditioning never used in hospitals after the first world war, has been specified by the present VA administration for installation in all operating rooms, laboratories, recovery units, and X-Ray departments.

Partial air conditioning also is required in installations in neuropathic seclusion rooms.



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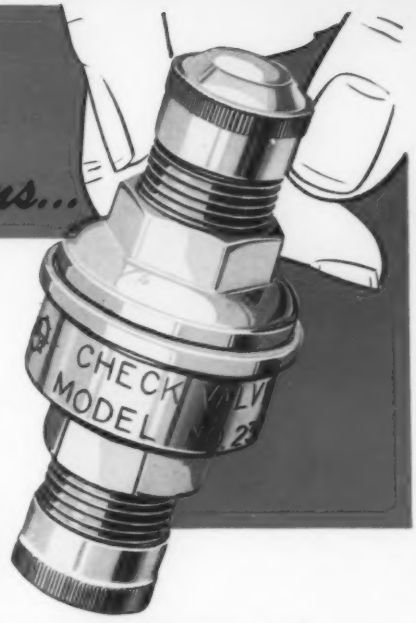
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Simplify Your Service... Improve Your Multiple Temperature Systems...



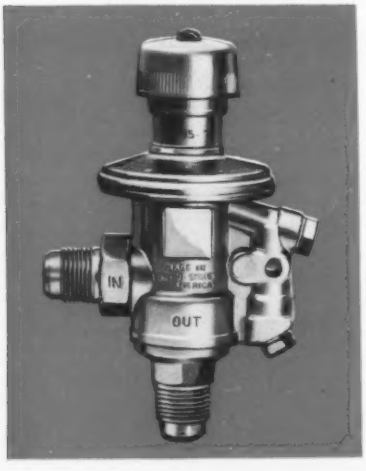
with these

DEPENDABLE Refrigeration Valves

MODEL 234 REFRIGERANT CHECK VALVE

• The new A-P Model 234 Refrigerant Check Valve is an effective companion to the popular A-P Model 235-S Suction Pressure Valve — where two or more evaporators must operate at differing temperatures with one condensing unit. The new Check Valve is installed in the outlet line of the lower-temperature evaporator to prevent the back flow of gas from high to low temperature evaporator during the off cycle.

Several new design and construction features make the new A-P Model 234 particularly valuable for service engineers. It can be installed in any position in the line. Self-aligning stainless steel valve discs are individually ground and lap-fitted to the seat for a perfect and positive closure. With its precision built forged brass body, accurately machined bronze seat and minimum number of internal parts, it assures a long life of trouble-free service. May be used for Freon, Methyl or Sulphur. Ask your Wholesaler about the new A-P Model 234 Refrigerant Check Valve, or write for bulletin No. M-200, or new condensed catalog.



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